

**O'ZBEKISTON RESPUBLIKASI OLIY VA O'RTA
MAXSUS TA'LIM VAZIRLIGI**

**I.A.KARIMOV nomidagi TOSHKENT DAVLAT
TEXNIKA UNIVERSITETI**

**MUHANDISLIK GEOLOGIYASI VA KONCHILIK
ISHI FAKULTETI**

OLIV MATEMATIKA KAFEDRASI

ANIQMAS INTEGRALLAR

**MUSTAQIL ISH VARIANTLARI VA METODIK
KO'RSATMALAR**

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Aniqmas integrallar. Mustaqil ish variantlari va metodik ko'rsatmalar. Toshkent, ToshDTU, 2016, 134 b.

Ushbu uslubiy ko'rsatmalar oliy matematika fanining muhim bo'limlaridan biri bo'lgan aniqmas integrallarga bag'ishlangan. Unda talabalarning mustaqil ravishda yechishlari uchun mo'ljallangan har birida 30 tadan misol bo'lgan 100 dan ortiq variant keltirilgan. Bu esa na faqat bir guruh, balki bir oqimda o'qiydigan barcha guruhning har bir talabasi uchun alohida variant taqdim etish imkonini beradi. Qo'llanmada namunaviy variantning barcha misollari batafsil yechimi bilan berilgan.

Islom Abdug'aniyevich Karimov nomidagi Toshkent davlat texnika universiteti ilmiy uslubiy kengashi tomonidan nashrga tavsiya qilingan.

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ToshDTU oliy matematika kafedrasida kompyuter texnikasida chop etilgan. Adadi 50 dona.

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Ushbu qo'llanma haqidagi o'z fikr va mulohazalaringizni Toshkent shahri, Talabalar shaharchasi, Universitet ko'chasi, 2A, Muhandislik geologiyasi va konchilik ishi fakulteti, 6-xona, oliy matematika kafedrasiga yoki aaa_uz@mail.ru elektron manziliga yo'llashingizni so'raymiz.

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KIRISH

Oliy matematikaning integrallar bo'limi nafaqat matematika fanining o'zida, shu bilan birga, oliy texnika ta'lim muassasalari talabalarining matematik tayyorgarliklarida ham o'z o'rniga ega. SHu bilan birga, aniqmas integrallar talabalar shu vaqtgacha o'rgangan mavzular orasida eng qiyini hamdir.

SHuningdek, aniqmas integrallar oliy matematikaning undan keyin o'rganiladigan bo'limlari va, umuman olganda, oliy matematikaning tadbiqlarida ham keng qo'llaniladi. SHu sababdan ham texnika yo'nalishi talabalariga aniqmas integrallarni o'qitish jiddiy e'tibor talab qiladi. Talabalarning oliy matematikaning bu bo'limidan yetarli ko'nikma va malakaga ega bo'lishlari, ko'p jihatdan, ularning mustaqil ishlarini to'g'ri tashkil etishga bog'liq.

Ushbu uslubiy ko'rsatmalar aynan shu maqsadda yaratilgan bo'lib, unda har birida aniqmas integrallarga oid 30 tadan misol bo'lgan 114 ta variant mustaqil ishlash uchun taklif qilinadi. Bu misollar quyida keltirilgan oltita topshiriqqa bo'lib chiqilgan:

- 1) O'rniga qo'yish va o'zgaruvchini almashtirish bilan hisoblanadigan integrallar (8 ta misol);
- 2) Bo'laklab integrallanadigan integrallar (4 ta misol);
- 3) Ratsional funksiyalarning integrallari (4 ta misol);
- 4) Trigonometrik funksiyalarning integrallari (5 ta misol);
- 5) Irratsional funksiyalarning integrallari (4 ta misol);
- 6) Turli usullarni qo'llab hisoblanadigan integrallar (5 ta misol).

Namuna sifatida keltirilgan variantdagi barcha misollar batafsil yechimi bilan berilgan. Bu esa qo'llanmadan foydalanishni ancha osonlashtiradi. Talabalar bu topshiriqlarni muvaffaqiyatli bajarishlari uchun ularning bir o'zgaruvchili funksiyalar, ularning hosilalari va differentsiallari, algebraik va trigonometrik ifodalarda shakl almashtirish kabi mavzularini bilishlari talab etiladi.

Namunaviy variant

1. O'rniga qo'yish usulini qo'llab, integrallarni hisoblang:

$$1.1. \int \frac{4^{\arcsin x}}{\sqrt{1-x^2}} dx;$$

$$1.2. \int \cos(3x - 4) dx;$$

$$1.3. \int \frac{x^3 dx}{4+x^8};$$

$$1.4. \int \frac{\cos x \sin x dx}{1+\sin^2 x};$$

$$1.5. \int \frac{dx}{\sin^2(3x+4)};$$

$$1.6. \int \operatorname{tg}^2 31x dx;$$

$$1.7. \int \frac{x^4 dx}{\sqrt[3]{4-x^5}};$$

$$1.8. \int \frac{4-3x}{x^2+9} dx;$$

2. Bo'laklab integrallang:

$$2.1. \int (2 - 3x) \sin 2x dx;$$

$$2.2. \int \sqrt{x} \ln x dx;$$

$$2.3. \int x \cdot \operatorname{arctg} 2x dx;$$

$$2.4. \int (4 - x) \cdot e^{x/3} dx;$$

3. Kasr-ratsional funksiya integralini hisoblang:

$$3.1. \int \frac{2x-1}{x^2-3x+4} dx;$$

$$3.2. \int \frac{x+3}{x(x+4)^2} dx;$$

$$3.3. \int \frac{2x^2+3}{(x+4)(x^2+5)} dx;$$

$$3.4. \int \frac{4x^2+2x-1}{x^2+2x-1} dx;$$

4. Trigonometrik funksiya integralini hisoblang:

$$4.1. \int \cos^4 x \cdot \sin^3 x dx;$$

$$4.2. \int \sin 5x \cdot \cos 8x dx;$$

$$4.3. \int \operatorname{ctg}^5 x dx;$$

$$4.4. \int \frac{dx}{3-2\cos x};$$

$$4.5. \int \sin^4 2x \cdot \cos^2 2x dx;$$

5. Irratsional funksiya integralini hisoblang:

$$5.1. \int \frac{\sqrt{x} dx}{\sqrt[3]{x^2+4}\sqrt{x}};$$

$$5.2. \int \frac{2-x}{x \cdot \sqrt{x+1}} dx;$$

$$5.3. \int \frac{x^2}{\sqrt{4-x^2}} dx;$$

$$5.4. \int \frac{dx}{x^3 \cdot \sqrt[3]{2-x^3}};$$

6. Turli usullarni qo'llab, integralni hisoblang:

$$6.1. \int \frac{2x-1}{\sqrt{x^2-6x+10}} dx;$$

$$6.2. \int \frac{e^x+3dx}{e^{2x}-1};$$

$$6.3. \int \frac{2x^4+3x^3-3x^2+\sqrt[3]{x}}{2x^3} dx;$$

$$6.4. \int \cos\sqrt{x} dx;$$

$$6.5. \int \frac{dx}{e^x+4};$$

NAMUNAVIY VARIANT YECHIMI VA MUSTAQIL ISHNI BAJARISH NAMUNASI

Topshiriq 1.

1. O'rniga qo'yish usulini qo'llab integralni hisoblang:

1.1. $\int \frac{4^{\arcsin x}}{\sqrt{1-x^2}} dx;$

1.2. $\int \cos(3x - 4) dx;$

1.3. $\int \frac{x^3 dx}{4+x^8};$

1.4. $\int \frac{\cos x \sin x dx}{1+\sin^2 x};$

1.5. $\int \frac{dx}{\sin^2(3x+4)};$

1.6. $\int \operatorname{tg}^2 31x dx;$

1.7. $\int \frac{x^4 dx}{\sqrt[3]{4-x^5}};$

1.8. $\int \frac{4-3x}{x^2+9} dx;$

Yechim

Topshiriq 1.1.

$$\int \frac{4^{\arcsin x} dx}{\sqrt{1-x^2}} = \int 4^{\arcsin x} d(\arcsin x) = \frac{4^{\arcsin x}}{\ln 4} + C.$$

Topshiriq 1.2.

$$\begin{aligned} \int \cos(3x - 4) dx &= \int \cos(3x - 4) \cdot \frac{d(3x - 4)}{3} = \\ &= \frac{1}{3} \int \cos(3x - 4) d(3x - 4) = \frac{1}{3} \sin(3x - 4) + C. \end{aligned}$$

Topshiriq 1.3.

$$\begin{aligned} \int \frac{x^3 dx}{4+x^8} &= \int \frac{x^3}{2^2 + (x^4)^2} \cdot \frac{d(x^4)}{4x^3} = \frac{1}{4} \int \frac{d(x^4)}{2^2 + (x^4)^2} = \frac{1}{4} \cdot \frac{1}{2} \operatorname{arctg} \frac{x^4}{2} + C = \\ &= \frac{1}{8} \operatorname{arctg} \frac{x^4}{2} + C \end{aligned}$$

Topshiriq 1.4.

$$\begin{aligned} \int \frac{\sin x \cos x dx}{1+\sin^2 x} &= \int \frac{\sin x \cos x}{1+\sin^2 x} \cdot \frac{d(1+\sin^2 x)}{(1+\sin^2 x)'} = \int \frac{\sin x \cos x}{1+\sin^2 x} \cdot \frac{d(1+\sin^2 x)}{2 \sin x \cos x} = \\ &= \frac{1}{2} \int \frac{d(1+\sin^2 x)}{1+\sin^2 x} = \frac{1}{2} \ln|1+\sin^2 x| + C. \end{aligned}$$

Topshiriq 1.5.

$$\int \frac{dx}{\sin^2(3x+4)} = \int \frac{1}{\sin^2(3x+4)} \cdot \frac{d(3x+4)}{3} = \frac{1}{3} \int \frac{d(3x+4)}{\sin^2(3x+4)} =$$

$$= -\frac{1}{3} \operatorname{ctg}(3x + 4) + C.$$

Topshiriq 1.6.

$$\begin{aligned} \int \operatorname{tg}^2 31x dx &= \int \frac{\sin^2 31x}{\cos^2 31x} dx = \int \frac{1 - \cos^2 31x}{\cos^2 31x} dx = \int \frac{dx}{\cos^2 31x} - \\ &- \int \frac{\cos^2 31x}{\cos^2 31x} dx = \int \frac{1}{\cos^2 31x} \cdot \frac{d(31x)}{31} - \int dx = \frac{1}{31} \int \frac{d(31x)}{\cos^2 31x} - x + C \\ &= \frac{1}{31} \operatorname{tg} 31x - x + C. \end{aligned}$$

Topshiriq 1.7.

$$\begin{aligned} \int \frac{x^4 dx}{\sqrt[3]{4-x^5}} &= \int (4-x^5)^{-\frac{1}{3}} \cdot x^4 \cdot \frac{d(4-x^5)}{-5x^4} = -\frac{1}{5} \int (4-x^5)^{-\frac{1}{3}} d(4-x^5) = \\ &= -\frac{1}{5} \cdot \frac{(4-x^5)^{\frac{2}{3}}}{\frac{2}{3}} + C = -\frac{3}{10} (4-x^5)^{\frac{2}{3}} + C. \end{aligned}$$

Topshiriq 1.8.

$$\begin{aligned} \int \frac{4-3x}{x^2+9} dx &= \int \frac{4dx}{x^2+9} - \int \frac{3xdx}{x^2+9} = 4 \int \frac{dx}{x^2+9} - \int \frac{3x}{x^2+9} \cdot \frac{d(x^2+9)}{2x} = \\ &= \frac{4}{3} \operatorname{arctg} \frac{x}{3} - \frac{3}{2} \int \frac{d(x^2+9)}{x^2+9} + C = \frac{4}{3} \operatorname{arctg} \frac{x}{3} - \frac{3}{2} \ln|x^2+9| + C. \end{aligned}$$

Topshiriq 2.

2. Bo'laklab integrallang:

2.1. $\int (2-3x) \sin 2x dx;$

2.2. $\int \sqrt{x} \ln x dx;$

2.3. $\int x \cdot \operatorname{arctg} 2x dx;$

2.4. $\int (4-x) \cdot e^{x/3} dx;$

Yechim

Topshiriq 2.1.

$$\begin{aligned} \int (2-3x) \sin 2x dx &= \left| \begin{array}{l} u = 2-3x \Rightarrow du = -3x \\ dv = \sin 2x dx \Rightarrow v = \int \sin 2x dx = -\frac{1}{2} \cos 2x \end{array} \right| = \\ &= (2-3x) \left(-\frac{1}{2} \cos 2x \right) - \int \left(-\frac{1}{2} \cos 2x \right) \cdot (-3 dx) = \\ &= (2-3x) \cdot \left(-\frac{1}{2} \cos 2x \right) - \frac{3}{2} \int \cos 2x dx = \frac{3x-2}{2} \cdot \cos 2x - \frac{3}{4} \sin 2x + C. \end{aligned}$$

Topshiriq 2.2.

$$\int \sqrt{x} \ln x dx = \left| \begin{array}{l} u = \ln x \Rightarrow du = \frac{dx}{x} \\ dv = \sqrt{x} dx \Rightarrow v = \int \sqrt{x} dx = \frac{x^{3/2}}{3/2} \end{array} \right| = \ln x \cdot \frac{2}{3} x^{3/2} - \frac{2}{3} \cdot \frac{x^{3/2}}{3/2} =$$

$$= \frac{2}{3} x \sqrt{x} \ln x - \frac{4}{9} x \sqrt{x} + C.$$

Topshiriq 2.3.

$$\int x \cdot \arctg 2x dx = \left| \begin{array}{l} u = \arctg 2x \Rightarrow du = \frac{2dx}{1+4x^2} \\ dv = x dx \Rightarrow v = \int x dx = \frac{x^2}{2} \end{array} \right| = \frac{x^2}{2} \cdot \arctg 2x -$$

$$- \int \frac{x^2}{2} \cdot \frac{2dx}{1+4x^2} = \frac{x^2}{2} \cdot \arctg 2x - \frac{1}{4} \int \frac{4x^2 + 1 - 1}{1+4x^2} dx = \frac{x^2}{2} \cdot \arctg 2x -$$

$$- \frac{1}{4} \int \left(1 - \frac{1}{1+4x^2} \right) dx = \frac{x^2}{2} \cdot \arctg 2x - \frac{1}{4} \int dx + \frac{1}{4} \int \frac{dx}{1+4x^2} =$$

$$= \frac{x^2}{2} \cdot \arctg 2x - \frac{x}{4} + \frac{1}{4} \cdot \frac{1}{2} \int \frac{d(2x)}{1+(2x)^2} = \frac{x^2}{2} \cdot \arctg 2x - \frac{x}{4} + \frac{1}{8} \arctg 2x + C =$$

$$= \left(\frac{x^2}{2} + \frac{1}{8} \right) \cdot \arctg 2x - \frac{x}{4} + C.$$

Topshiriq 2.4.

$$\int (4-x)e^{x/3} dx = \left| \begin{array}{l} u = 4-x \Rightarrow du = -dx \\ dv = e^{x/3} dx \Rightarrow v = \int e^{x/3} dx = 3e^{x/3} \end{array} \right| = 3(4-x)e^{x/3} -$$

$$- \int 3e^{x/3}(-dx) = 3(4-x)e^{x/3} + 3 \int e^{x/3} dx = 3(4-x)e^{x/3} + 9e^{x/3} + C$$

Topshiriq 3.

3. Kasr-ratsional funksiyalarning integralini hisoblang:

3.1. $\int \frac{2x-1}{x^2-3x+4} dx;$

3.2. $\int \frac{x+3}{x(x+4)^2} dx;$

3.3. $\int \frac{2x^2+3}{(x+4)(x^2+5)} dx;$

3.4. $\int \frac{4x^2+2x-1}{x^2+2x-1} dx;$

Yechim

Topshiriq 3.1.

$$\int \frac{2x-1}{x^2-3x+4} dx$$

Integral ostidagi funksiya

$$f(x) = \frac{2x - 1}{x^2 - 3x + 4}$$

mahrajida $x^2 - 3x + 4$ kvadrat uchhadga ega. SHuning uchun integrallash quyidagi usulda bajariladi:

1) kvadrat uchhadga to'la kvadrat ajratamiz:

$$x^2 - 3x + 4 = x^2 - 2 \cdot x \cdot \frac{3}{2} + \left(\frac{3}{2}\right)^2 - \left(\frac{3}{2}\right)^2 + 4 = \left(x - \frac{3}{2}\right)^2 + \frac{7}{4};$$

2) yangi o'zgaruvchi kiritamiz: $u = x - 1,5$, undan $x = u + 1,5$ va $dx = du$;

3) berilgan integralda yangi o'zgaruvchiga o'tamiz::

$$\int \frac{(2x - 1)dx}{x^2 - 3x + 4} = \int \frac{2(u + 1,5) - 1}{u^2 + 1,75} du = \int \frac{2u + 3 - 1}{u^2 + 1,75} du = \int \frac{2u + 2}{u^2 + 1,75} du;$$

4) hosil bo'lgan integralni ikki integralga ajratamiz. Ulardan birinchisi jadvaldagi integral, ikkinchisi esa shakl almashtirishlardan keyin jadvaldagi integralga keladi.

$$\begin{aligned} \int \frac{2u + 2}{u^2 + 1,75} dx &= \int \frac{2udu}{u^2 + 1,75} + \int \frac{2du}{u^2 + 1,75} = \int \frac{2u}{u^2 + 1,75} \cdot \frac{d(u^2 + 1,75)}{2u} + \\ &+ 2 \int \frac{du}{u^2 + (\sqrt{1,75})^2} = \int \frac{d(u^2 + 1,75)}{u^2 + 1,75} + \frac{2}{\sqrt{1,75}} \operatorname{arctg} \frac{u}{\sqrt{1,75}} + C = \\ &= 2 \ln|u^2 + 1,75| + \frac{2}{\sqrt{1,75}} \operatorname{arctg} \frac{u}{\sqrt{1,75}} + C; \end{aligned}$$

5) dastlabki integralga qaytamiz:

$$\begin{aligned} 2 \ln|u^2 + 1,75| + \frac{2}{\sqrt{1,75}} \operatorname{arctg} \frac{u}{\sqrt{1,75}} + C &= 2 \ln|(x - 1,5)^2 + 1,75| + \\ + \frac{2}{\sqrt{1,75}} \operatorname{arctg} \frac{x - 1,5}{\sqrt{1,75}} + C &= 2 \ln|x^2 - 3x + 4| + \frac{2}{\sqrt{1,75}} \operatorname{arctg} \frac{x - 1,5}{\sqrt{1,75}} + C; \end{aligned}$$

Topshiriq 3.2.

$$\int \frac{x+3}{x(x+4)^2} dx;$$

Integral ostidagi funksiya

$$f(x) = \frac{x + 3}{x(x + 4)^2}$$

to'g'ri ratsional kasr funksiya. Uni integrallash uchun eng sodda kasrlarga ajratamiz:

$$\frac{x + 3}{x(x + 4)^2} = \frac{A}{x} + \frac{B}{x + 4} + \frac{C}{(x + 4)^2}. \quad (*)$$

Endi noma'lum A , B va C koeffitsiyentlarni topamiz. Buning uchun (*) tenglikning o'ng tomonida turgan kasrlarni umumiy mahrajga keltiramiz:

$$\frac{x + 3}{x(x + 4)^2} = \frac{A}{x} + \frac{B}{x + 4} + \frac{C}{x(x + 4)^2} = \frac{A(x + 4)^2 + Bx(x + 4) + Cx}{x(x + 4)^2}.$$

Bir xil mahrajli ikki kasrning tengligidan ularning suratlarning ham tengligi kelib chiqadi:

$$x + 3 = A(x + 4)^2 + Bx(x + 4) + Cx.$$

Bu tenglik x o'zgaruvchining barcha qiymatlarida o'rinli. Uchta nomo'lum koeffitsiyentlarning qiymatlarini topish uchun oxirgi tenglikda o'zgaruvchi o'rniga ixtiyoriy uchta qiymatni qo'yib, uchta tenglamadan iborat uch A , B va C noma'lumli sistemaga ega bo'lamiz. $x = 0$, $x = -4$ va $x = -3$ bo'lsin.

U holda

$$x = 0: \quad 3 = 16A \Rightarrow A = \frac{1}{16},$$

$$x = -4: \quad -1 = -4C \Rightarrow C = \frac{1}{4},$$

$$x = -3: \quad 0 = A - 3B - 3C \Rightarrow \frac{3}{16} - 3B - \frac{3}{4} = 0 \Rightarrow B = -\frac{3}{16}.$$

Noma'lum koeffitsiyentlarning topilgan qiymatlarini berilgan funksiyaning yoyilmasiga qo'yamiz va integralni hisoblaymiz:

$$\begin{aligned} \int \frac{(x+3)}{x(x+4)^2} dx &= \frac{3}{16} \int \frac{dx}{x} - \frac{3}{16} \int \frac{dx}{x+4} + \frac{1}{4} \int \frac{dx}{(x+4)^2} = \frac{3}{16} \ln|x| + \\ &- \frac{3}{16} \ln|x+4| - \frac{1}{4(x+4)} + C = \frac{3}{16} \ln \left| \frac{x}{x+4} \right| - \frac{1}{x+4} + C. \end{aligned}$$

Topshiriq 3.3.

$$\int \frac{2x^2 + 3}{(x+4)(x^2+5)} dx.$$

Integral ostidagi funksiya

$$f(x) = \frac{2x^2 + 3}{(x+4)(x^2+5)}$$

to'g'ri ratsional kasr bo'lganligi sababli bu integralni ham avvalgi misoldagi kabi topaymiz.

$$\begin{aligned} \frac{2x^2 + 3}{(x+4)(x^2+5)} &= \frac{A}{x+4} + \frac{Bx+C}{x^2+5} = \frac{A(x^2+5) + (Bx+C)(x+4)}{(x+4)(x^2+5)} \Rightarrow \\ \Rightarrow 2x^2 + 3 &= A(x^2+5) + (Bx+C)(x+4) \Rightarrow \end{aligned}$$

$$x = -4: 35 = 20A \Rightarrow A = \frac{7}{4};$$

$$x = 0: \quad 3 = 5A + 4C \Rightarrow 3 = 5 \cdot \frac{7}{4} + 4C \Rightarrow C = -\frac{13}{16};$$

$$x = -3: 21 = 14A - 3B + C \Rightarrow 14 \cdot \frac{7}{4} - 3B - \frac{13}{16} = 21 \Rightarrow B = \frac{43}{46}.$$

Natijada quyidagiga ega bo'lamiz:

$$\begin{aligned} \int \frac{(2x^2 + 3)dx}{(x + 4)(x^2 + 5)} &= \int \frac{\frac{7}{4}}{x + 4} dx + \int \frac{\frac{43x}{48} - \frac{13}{48}}{x^2 + 5} dx = \frac{7}{4} \int \frac{dx}{x} + \frac{43}{48} \int \frac{x dx}{x^2 + 5} - \\ &- \frac{13}{16} \int \frac{dx}{x^2 + 5} = \frac{7}{4} \ln|x| + \frac{43}{48} \int \frac{x}{x^2 + 5} \cdot \frac{d(x^2 + 5)}{2x} - \frac{13}{16} \int \frac{dx}{x^2 + (\sqrt{5})^2} + C = \\ &= \frac{7}{4} \ln|x| + \frac{43}{48} \ln|x^2 + 5| - \frac{13}{16\sqrt{5}} \operatorname{arctg} \frac{x}{\sqrt{5}} + C. \end{aligned}$$

Topshiriq 3.4.

$$\int \frac{2x^2 + 3}{(x + 4)(x^2 + 5)} dx.$$

Integral ostidagi funksiya

$$f(x) = \frac{4x^2 + 2x - 1}{x^2 + 2x - 1}$$

noto'g'ri ratsional kasr bo'lgani uchun avval uning butun qismini ajratib olamiz. Buning uchun kasrning suratini maxrajiga bo'lamiz va berilgan kasrni butun funksiya va to'g'ri kasr yig'indisi ko'rinishida yozib olamiz. So'ng hosil bo'lgan to'g'ri kasrni eng sodda kasrlarga ajratamiz:

$$4x^2 + 2x - 1 \mid \underline{x^2 + 2x - 1}$$

$$\underline{4x^2 + 8x - 4} \mid \quad 4$$

$$-6x + 3$$

Natijada quyidagiga ega bo'lamiz:

$$\frac{4x^2 + 2x - 1}{x^2 + 2x - 1} = 4 + \frac{-6x + 3}{x^2 + 2x - 1}.$$

U holda berilgan integral quyidagi integrallar yig'indisiga teng bo'ladi:

$$\begin{aligned} \int \frac{4x^2 + 2x - 1}{x^2 + 2x - 1} dx &= \int \left(4 + \frac{-6x + 3}{x^2 + 2x - 1} \right) dx = \int 4 dx - 3 \int \frac{(2x - 1) dx}{x^2 + 2x - 1} = \\ &= 4x - 3 \int \frac{2x - 1}{x^2 + 2x - 1} dx + C. \end{aligned}$$

Oxirgi integralni topish uchun

$$\int \frac{2x - 1}{x^2 + 2x - 1} dx$$

integral ostidagi funksiya mahrajini ko'paytuvchilarga ajratamiz:

$$x^2 + 2x - 1 = (x + 1 - \sqrt{2})(x + 1 + \sqrt{2})$$

Berilgan kasrni ikkita sodda kasr yig'indisi ko'rinishida yozib olamiz:

$$\frac{2x - 1}{x^2 + 2x - 1} = \frac{2x - 1}{(x + 1 - \sqrt{2})(x + 1 + \sqrt{2})} = \frac{A}{x + 1 - \sqrt{2}} + \frac{B}{x + 1 + \sqrt{2}}$$

A va B koeffitsiyentlarni topamiz:

$$\frac{2x - 1}{(x + 1 - \sqrt{2})(x + 1 + \sqrt{2})} = \frac{A}{x + 1 - \sqrt{2}} + \frac{B}{x + 1 + \sqrt{2}} =$$

$$\frac{A(x + 1 + \sqrt{2}) + B(x + 1 - \sqrt{2})}{(x + 1 - \sqrt{2})(x + 1 + \sqrt{2})} \Rightarrow$$

$$2x - 1 = A(x + 1 - \sqrt{2}) + B(x + 1 + \sqrt{2})$$

$$x = -1 - \sqrt{2}: \quad -2 - 2\sqrt{2} - 1 = -2\sqrt{2}B \Rightarrow B = \frac{3 + 2\sqrt{2}}{2\sqrt{2}};$$

$$x = -1 + \sqrt{2}: \quad -2 + 2\sqrt{2} - 1 = 2\sqrt{2}A \Rightarrow A = \frac{-3 + 2\sqrt{2}}{2\sqrt{2}}.$$

U holda

$$\int \frac{2x - 1}{x^2 + 2x - 1} dx = \frac{-3 + 2\sqrt{2}}{2\sqrt{2}} \int \frac{dx}{x + 1 - \sqrt{2}} + \frac{3 + 2\sqrt{2}}{2\sqrt{2}} \int \frac{dx}{x + 1 + \sqrt{2}} =$$

$$= \frac{-3 + 2\sqrt{2}}{2\sqrt{2}} \ln|x + 1 - \sqrt{2}| + \frac{3 + 2\sqrt{2}}{2\sqrt{2}} \ln|x + 1 + \sqrt{2}| + C.$$

Olingan natijalarni qo'shib, javobni topamiz:

$$\int \frac{4x^2 + 2x - 1}{x^2 + 2x - 1} dx =$$

$$= 4x - 3 \left(\frac{-3 + 2\sqrt{2}}{2\sqrt{2}} \ln|x + 1 - \sqrt{2}| + \frac{3 + 2\sqrt{2}}{2\sqrt{2}} \ln|x + 1 + \sqrt{2}| \right) + C =$$

$$= 4x + \frac{9 - 6\sqrt{2}}{2\sqrt{2}} \ln|x + 1 - \sqrt{2}| - \frac{9 + 6\sqrt{2}}{2\sqrt{2}} \ln|x + 1 + \sqrt{2}| + C.$$

Topshiriq 4

4. Quyidagi trigonometrik funksiyalarning integrallarini toping:

4.1. $\int \cos^4 x \cdot \sin^3 x dx$;

4.2. $\int \sin 5x \cdot \cos 8x dx$;

4.3. $\int \operatorname{ctg}^5 x dx$;

4.4. $\int \frac{dx}{3 - 2\cos x}$;

4.5. $\int \sin^4 2x \cdot \cos^2 2x dx$.

Yechim

Topshiriq 4.1.

$$\int \cos^4 x \cdot \sin^3 x dx$$

Asosiy trigonometrik ayniyatdan foydalanib integral ostidagi funksiyani integrallash uchun qulay ko'rinishga keltiramiz:

$$f(x) = \cos^4 x \cdot \sin^3 x = \cos^4 x \cdot \sin^2 x \cdot \sin x = \cos^4 x \cdot (1 - \cos^2 x) \cdot \sin x.$$

U holda

$$\begin{aligned}\int \cos^4 x \cdot \sin^3 x dx &= \int \cos^4 x \cdot (1 - \cos^2 x) \sin x dx = \\ &= \int \cos^4 x \cdot (1 - \cos^2 x) \sin x \cdot \frac{d(\cos x)}{-\sin x} = - \int \cos^4 x \cdot (1 - \cos^2 x) d(\cos x) = \\ &= - \int \cos^4 x d(\cos x) + \int \cos^6 x d(\cos x) = -\frac{\cos^5 x}{5} + \frac{\cos^7 x}{7} + C.\end{aligned}$$

Topshiriq 4.2.

$$\begin{aligned}\int \sin 5x \cdot \cos 8x dx \\ \int \sin 5x \cdot \cos 8x dx &= \left| \sin 5x \cdot \cos 8x = \frac{1}{2} (\sin 13x - \sin 3x) \right| = \\ &= \frac{1}{2} \int \sin 13x dx - \frac{1}{2} \int \sin 3x dx = \frac{1}{2} \int \sin 13x \cdot \frac{d(13x)}{13} - \frac{1}{2} \int \sin 3x \cdot \frac{d(3x)}{3} = \\ &= -\frac{1}{26} \cos 13x + \frac{1}{6} \cos 3x + C.\end{aligned}$$

Topshiriq 4.3.

$$\int \operatorname{ctg}^5 x dx$$

Integralda o'zgaruvchini almashtiramiz:

$$\int \operatorname{ctg}^5 x dx = \left| \begin{array}{l} \operatorname{ctg} x = t \\ dt = -\frac{dt}{t^2 + 1} \end{array} \right| = - \int \frac{t^5}{t^2 + 1} dt.$$

Almashtirishdan keyin integrallash ratsional funksiyani integrallashga keldi. Integral ostida noto'g'ri kasr turiibdi. Uning suratini mahrajiga bo'lib, uning butun qismini ajratib olamiz::

$$\frac{t^5}{t^2 + 1} = t^3 - t + \frac{t}{t^2 + 1}.$$

Natijada quyidagiga ega bo'lamiz:

$$\begin{aligned}\int \operatorname{ctg}^5 x dx &= - \int \left(t^3 - t + \frac{t}{t^2 + 1} \right) dt = - \int t^3 dt + \int t dt - \int \frac{t dt}{t^2 + 1} = \\ &= -\frac{t^4}{4} + \frac{t^2}{2} - \int \frac{t}{t^2 + 1} \cdot \frac{d(t^2 + 1)}{2t} = -\frac{t^4}{4} + \frac{t^2}{2} - \frac{1}{2} \int \frac{d(t^2 + 1)}{t^2 + 1} = \\ &= -\frac{t^4}{4} + \frac{t^2}{2} - \frac{1}{2} \ln|t^2 + 1| + C.\end{aligned}$$

Dastlabki o'zgaruvchiga qaytamiz:

$$\int \operatorname{ctg}^5 x dx = -\frac{\operatorname{ctg}^4 x}{4} + \frac{\operatorname{ctg}^2 x}{2} - \frac{1}{2} \ln|1 + \operatorname{ctg}^2 x| + C.$$

Topshiriq 4.4.

$$\int \frac{dx}{3 - 2\cos x}$$

Bu integralni hisoblash uchun umumiy trigonometrik almashtirishni bajaramiz:

$$\int \frac{dx}{3 - 2\cos x} = \left| \begin{array}{l} t = \operatorname{tg} \frac{x}{2}, dt = \frac{2dt}{t^2 + 1} \\ \cos x = \frac{1 - t^2}{1 + t^2} \end{array} \right| = \int \frac{\frac{2dt}{t^2 + 1}}{3 - 2 \cdot \frac{1 - t^2}{1 + t^2}} = 2 \int \frac{dt}{5t^2 + 1} =$$

$$= \frac{2}{5} \int \frac{dt}{t^2 + (\sqrt{0.2})^2} = \frac{2}{5\sqrt{0.2}} \operatorname{arctg} \frac{t}{\sqrt{0.2}} + C = \frac{2\sqrt{5}}{5} \operatorname{arctg} \sqrt{5}t + C.$$

Topshiriq 4.5.

$$\int \sin^4 2x \cdot \cos^2 2x dx$$

Bu integralni hisoblash uchun darajani pasaytirish formulalaridan foydalanamiz:

$$\cos^2 x = \frac{1 + \cos 2x}{2}, \quad \sin^2 x = \frac{1 - \cos 2x}{2}.$$

Natijada quyidagiga ega bo'lamiz:

$$\int \sin^4 2x \cos^2 2x dx = \int \left(\frac{1 - \cos 4x}{2} \right)^2 \cdot \frac{1 + \cos 4x}{2} dx =$$

$$= \frac{1}{8} \int (1 - \cos^2 4x)(1 - \cos 4x) dx = \frac{1}{8} \int (1 - \cos 4x - \cos^2 4x + \cos^3 4x) dx$$

$$= \frac{1}{8} \int dx - \frac{1}{8} \int \cos 4x dx - \frac{1}{8} \int \cos^2 4x dx + \frac{1}{8} \int \cos^3 4x dx =$$

$$= \frac{1}{8} x - \frac{1}{8} \int \cos 4x \cdot \frac{d(4x)}{4} - \frac{1}{8} \int \frac{1 + \cos 8x}{2} dx + \frac{1}{8} \int \cos^2 4x \cdot \cos 4x dx =$$

$$= \frac{1}{8} x - \frac{1}{32} \sin 4x - \frac{1}{16} \left(x + \frac{1}{8} \sin 8x \right) + \frac{1}{8} \int \frac{(1 - \sin^2 4x) \cdot \cos 4x \cdot d(\sin 4x)}{4 \cos 4x} =$$

$$= \frac{1}{8} x - \frac{1}{32} \sin 4x - \frac{1}{16} x - \frac{1}{128} \sin 8x + \frac{1}{32} \int (1 - \sin^2 4x) d(\sin 4x) =$$

$$= \frac{1}{16} x - \frac{1}{32} \sin 4x - \frac{1}{128} \sin 8x + \frac{1}{32} \sin 4x - \frac{1}{96} \sin^3 4x + C.$$

Topshiriq 5

Irratsional funksiyalarning integrallarini toping:

5.1. $\int \frac{\sqrt{x} dx}{\sqrt[3]{x^2 + 4} \sqrt{x}}$

5.2. $\int \frac{2-x}{x \cdot \sqrt{x+1}} dx;$

$$5.3. \int \frac{x^2}{\sqrt{4-x^2}} dx;$$

$$5.4. \int \frac{dx}{x^3 \cdot \sqrt[3]{2-x^3}};$$

Yechim

Topshiriq 5.1.

$$\int \frac{\sqrt{x} dx}{\sqrt[3]{x^2} + \sqrt[4]{x}}$$

Bu kabi integrallarda irratsionallikdan qutilish uchun x o'zgaruvchi o'rniga yangi t o'zgaruvchi kiritiladi. Bu o'zgaruvchilar $x = t^p$ tenglik bilan bog'langan bo'lib, undagi daraja ko'rsatkichi p shunday bo'lishi kerakki, integral ostidagi funksiyada qatnashgan barcha ildizlarda irratsionallikdan qutilish mumkin bo'lsin.

$$\begin{aligned} \int \frac{\sqrt{x} dx}{\sqrt[3]{x^2} + \sqrt[4]{x}} &= \left| x = t^{12} \Rightarrow dx = 12t^{11} dt \right| = \int \frac{t^6 \cdot 12t^{11}}{t^8 + t^3} dt = \\ &= 12 \int \frac{t^{17} dt}{t^3(t^5 + 1)} = 12 \int \frac{t^{14} dt}{t^5 + 1} = 12 \int \left(t^9 - t^4 + \frac{t^4}{t^5 + 1} \right) dt = 12 \int t^9 dt - \\ &- 12 \int t^4 dt + 12 \int \frac{t^4}{t^5 + 1} \cdot \frac{d(t^5 + 1)}{5t^4} = 12 \cdot \frac{t^{10}}{10} - 12 \cdot \frac{t^5}{5} + \frac{12}{5} \int \frac{d(t^5 + 1)}{t^5 + 1} = \\ &= 1,2t^{10} - 2,4t^5 + 2,4 \ln|t^5 + 1| + C = 1,2 \sqrt[12]{x^{10}} - 2,4 \sqrt[12]{x^5} + \\ &+ 2,4 \ln \left| \sqrt[12]{x^5 + 1} \right| + C = 1,2 \sqrt[6]{x^5} - 2,4 \sqrt[12]{x^5} + 2,4 \ln \left| \sqrt[12]{x^5 + 1} \right| + C. \end{aligned}$$

Topshiriq 5.2.

$$\int \frac{2-x}{x \cdot \sqrt{x+1}} dx.$$

$$\begin{aligned} \int \frac{2-x}{x \cdot \sqrt{x+1}} dx &= \left| x+1 = t^2 \Rightarrow x = t^2 - 1 \right| = \int \frac{(2-t^2+1) \cdot 2t dt}{(t^2-1) \cdot t} = \\ &= -2 \int \frac{t^2-3}{t^2-1} dt = -2 \int \frac{(t^2-1)-2}{t^2-1} dt = -2 \int \frac{t^2-1}{t^2-1} dt + 4 \int \frac{dt}{t^2-1} = \\ &= -2 \int dt + 4 \cdot \frac{1}{2} \ln \left| \frac{t-1}{t+1} \right| + C = -2t + 2 \ln \left| \frac{t-1}{t+1} \right| + C = -2\sqrt{x+1} + \\ &+ 2 \ln \left| \frac{\sqrt{x+1}-1}{\sqrt{x+1}+1} \right| + C. \end{aligned}$$

Topshiriq 5.3.

$$\int \frac{x^2}{\sqrt{4-x^2}} dx.$$

$\sqrt{a^2 - x^2}$, $\sqrt{a^2 + x^2}$, $\sqrt{x^2 - a^2}$ ko'rinishidagi ildizlar qatnashgan integrallarni hisoblash uchun $x = a \sin t$, $x = a \tan t$, $x = a / \cos t$ ko'rinishidagi trigonometrik almashtirishlardan foydalanish mumkin.

$$\int \frac{x^2}{\sqrt{4-x^2}} dx = \left| \begin{array}{l} x = 2\sin t \Rightarrow dx = 2\cos t dt \\ t = \arcsin \frac{x}{2} \end{array} \right| = \int \frac{4\sin^2 t \cdot 2\cos t dt}{\sqrt{4-4\sin^2 t}} =$$

$$= \frac{8}{2} \int \frac{\sin^2 t \cdot \cos t dt}{\sqrt{1-\sin^2 t}} dt = 4 \int \frac{\sin^2 t \cdot \cos t dt}{\cos t} = 4 \int \sin^2 t dt =$$

$$= 4 \int \frac{1-\cos 2t}{2} dt = 2 \int (1-\cos 2t) dt = 2 \int dt - 2 \int \cos 2t \cdot \frac{d(2t)}{2} =$$

$$= 2t - \int \cos 2t d(2t) + C = 2t - \sin 2t + C = 2 \arcsin \frac{x}{2} - \sin 2 \arcsin \frac{x}{2} + C.$$

Topshiriq 5.4.

$$\int \frac{dx}{x^3 \cdot \sqrt[3]{2-x^3}}$$

Differentsial binomlarni, ya'ni

$$\int x^m(ax^n + b)^p dx$$

ko'rinishidagi integrallarni faqat quyidagi uch holda CHEbishev almashtirishlari yordamida hisoblash mumkin:

- 1) p – butun son ($x = t^s$ almashtirish bajariladi, unda s natural son n va m kasrlarning umumiy mahraji)
- 2) $\frac{m+1}{n}$ – butun son ($ax^n + n = t^s$ almashtirish bajariladi, unda s kasrning mahraji);
- 3) $\frac{m+1}{n} + p$ – butun son ($\frac{ax^n+n}{x^n} = t^s$ almashtirish bajariladi, unda s kasrning mahraji).

yesli chisla i ix ukazannye kombinatsii ne udovletvoryayut ni odnomu iz sluchaev, to integral ot dannogo differentsialnogo binoma yavlyaetsya «ne berushimsya», t. ye. ne vyrazaetsya v elementarnyx funktsiyax.

Ko'rilayotgan misolda $m = -3, n = 3, p = -\frac{1}{3}$ va $\frac{m+1}{n} + p = -1$ butun son. SHuning uchun berilgan integralni hisoblash uchun 3 almashtirishdan foydalanamiz..

$$\int \frac{dx}{x^3 \cdot \sqrt[3]{2-x^3}} = \int x^{-3}(2-x)^{-\frac{1}{3}} dx = \left[\begin{array}{l} \frac{2-x^3}{x^3} = t^3 \Rightarrow x^3 = \frac{2}{t^3+1} \Rightarrow \\ x = \sqrt[3]{2}(t^3+1)^{-\frac{1}{3}} \Rightarrow \\ dx = -\sqrt[3]{2}t^2(t^3+1)^{-\frac{4}{3}}; \\ (2-x^3)^{-\frac{1}{3}} = t^{-1}(\sqrt[3]{2})^{-1}(t^3+1)^{\frac{1}{3}} \end{array} \right] =$$

$$= - \int \sqrt[3]{2} \cdot t^2 \cdot (t^3+1)^{-\frac{4}{3}} 2^{-1} \cdot (t^3+1) \cdot t^{-1} \cdot 2^{-\frac{1}{3}} \cdot (t^3+1)^{\frac{1}{3}} \cdot dt =$$

$$= - \int \frac{t}{2} dt = -\frac{t^2}{4} + C = \frac{\sqrt[3]{(2-x^3)^2}}{4x^2} + C.$$

Topshiriq 6.

Turli usullarni qo'llab integrallarni hisoblang

$$6.1. \int \frac{2x-1}{\sqrt{x^2-6x+10}} dx;$$

$$6.2. \int \frac{e^x+3}{e^{2x}-1} dx;$$

$$6.3. \int \frac{2x^4+3x^3-3x^2+\sqrt[3]{x}}{2x^3} dx;$$

$$6.4. \int \cos\sqrt{x} dx;$$

$$6.5. \int \frac{dx}{e^x+4};$$

Yechim

Topshiriq 6.1

$$\int \frac{2x-1}{\sqrt{x^2-6x+10}} dx.$$

Integral ostidagi funksiyada kvadrat uchhad qatnashayapti. SHuning uchun integralni hisoblashda avval kvadrat uchhaddan to'liq kvadrat ajratib olamiz, so'ng yangi o'zgaruvchi kiritamiz. (3.1 misolga qarang).

$$\begin{aligned} \int \frac{2x-1}{\sqrt{x^2-6x+10}} dx &= \left| \begin{array}{l} x^2-6x+10 = (x-3)^2+1 \Rightarrow \\ x-3 = t \Rightarrow x = t+3 \Rightarrow dx = dt \end{array} \right| = \\ &= \int \frac{2(t+3)-1}{\sqrt{t^2+1}} dt = \int \frac{2t+5}{\sqrt{t^2+1}} dt = \int \frac{2t}{\sqrt{t^2+1}} dt + \int \frac{5}{\sqrt{t^2+1}} dt = \\ &= \int \frac{2t}{\sqrt{t^2+1}} \cdot \frac{d(t^2+1)}{2t} + 5 \int \frac{dt}{\sqrt{t^2+1}} = \int \frac{d(t^2+1)}{\sqrt{t^2+1}} + 5 \ln |t + \sqrt{t^2+1}| = \\ &= 2\sqrt{t^2+1} + 5 \ln |t + \sqrt{t^2+1}| + C = 2\sqrt{(x-3)^2+1} + \\ &+ 5 \ln |x-3 + \sqrt{(x-3)^2+1}| + C = 2\sqrt{x^2-6x+10} + \\ &+ 5 \ln |x-3 + \sqrt{x^2-6x+10}| + C. \end{aligned}$$

Topshiriq 6.2.

$$\int \frac{e^x+3}{e^{2x}-1} dx.$$

O'zgaruvchini almashtirish bilan integral ratsional funksiyaning integraliga keladi.

$$\int \frac{e^x+3}{e^{2x}-1} dx = \left| \begin{array}{l} e^x = t \Rightarrow x = \ln t \Rightarrow \\ dx = \frac{dt}{t} \end{array} \right| = \int \frac{t+3}{t^2-1} \cdot \frac{dt}{t} =$$

$$\begin{aligned}
&= \int \frac{t+3}{t(t-1)(t+1)} dt = \left| \begin{array}{l} \frac{t+3}{t(t-1)(t+1)} = \frac{A}{t} + \frac{B}{t-1} + \frac{C}{t+1} = \\ = \frac{A(t-1)(t+1) + Bt(t+1) + Ct(t-1)}{t(t-1)(t+1)} \Rightarrow \\ t+3 = A(t-1)(t+1) + Bt(t+1) + Ct(t-1) \\ t=0: A = -3 \\ t=1: B = 2 \\ t=-1: C = 1 \end{array} \right| = \\
&= -3 \int \frac{dt}{t} + 2 \int \frac{dt}{t-1} + \int \frac{dt}{t+1} = -3 \ln|t| + 2 \ln|t-1| + \ln|t+1| + C = \\
&= -3 \ln|e^x| + \ln|e^x - 1| + \ln|e^x + 1| + C = -3x + \ln \frac{e^{2x} - 2e^x + 1}{e^x + 1} + C.
\end{aligned}$$

Topshiriq 6.3.

Integral ostidagi ifodaning suratidagi to'rtta qo'shiluvchining har birini ifodadagi kasr mahrajiga bo'lib, uni to'rtta qo'shiluvchining yig'indisiga keltirib olamiz. Yig'indining integrali qo'shiluvchilarning integrallari yig'indisiga tengligidan foydalanib, integralni integrallar jadvalidagi darajali funksiyaning integrallariga keltiramiz.

$$\begin{aligned}
&\int \frac{2x^4 + 3x^3 - 3x^2 + \sqrt[3]{x}}{2x^3} dx = \int \frac{2x^4}{2x^3} dx + \int \frac{x^3}{2x^3} dx - \int \frac{3x^2}{2x^3} dx + \int \frac{x^{\frac{1}{3}}}{2x^3} dx = \\
&= \int x dx + \frac{1}{2} \int dx - \frac{3}{2} \int \frac{dx}{x} + \frac{1}{2} \int x^{-\frac{8}{3}} dx = \frac{x^2}{2} + \frac{x}{2} - \frac{3}{2} \ln|x| - \frac{3x^{-\frac{5}{3}}}{5} + C.
\end{aligned}$$

Topshiriq 6.4.

$$\int \cos\sqrt{x} dx.$$

Ushbu integralda o'zgaruvchini almashtirish bilan undagi irratsionallikdan qutilamiz. So'ngra hosil bo'lgan integralni bo'laklab integrallab integrallaymiz.

$$\begin{aligned}
&\int \cos\sqrt{x} dx = \left| \begin{array}{l} x = t^2 \\ dx = 2t dt \\ t = \sqrt{x} \end{array} \right| = 2 \int t \cos t dt = \left| \begin{array}{l} u = t \Rightarrow du = dt \\ dv = \cos t dt \Rightarrow v = \sin t \end{array} \right| = \\
&= 2t \sin t - 2 \int \sin t dt = 2t \sin t + 2 \cos t + C = 2\sqrt{x} \sin\sqrt{x} + 2 \cos\sqrt{x} + C.
\end{aligned}$$

Topshiriq 6.5.

$$\int \frac{dx}{e^x + 4}.$$

Bu integral ham 6.2. misoldagi integral kabi o'zgaruvchini almashtirishdan keyin ratsional funksiyaning integraliga keladi.

$$\begin{aligned}\int \frac{dx}{e^x + 4} &= \left| \begin{array}{l} e^x = t \\ x = \ln t \\ dx = \frac{dt}{t} \end{array} \right| = \int \frac{dt}{t(t+4)} = \int \frac{dt}{t^2 + 4t} = \int \frac{dt}{(t+2)^2 - 4} = \\ &= \int \frac{d(t+2)}{(t+2)^2 - 4} = \frac{1}{4} \ln \left| \frac{t+2-2}{t+2+2} \right| + C = \frac{1}{4} \ln \left| \frac{t}{t+4} \right| + C = \frac{1}{4} \ln \left| \frac{e^x}{e^x + 4} \right| + C.\end{aligned}$$

MUSTAQIL ISH VARIANTLARI

1-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

$$1. \int \frac{x^5 dx}{\sqrt{1+x^6}};$$

$$2. \int \sin(2x + 3) dx;$$

$$3. \int \frac{dx}{\arcsin x \cdot \sqrt{1-x^2}};$$

$$4. \int \frac{e^x dx}{1+e^{2x}};$$

$$5. \int \frac{2^{\arctg 2x} dx}{1+4x^2};$$

$$6. \int \operatorname{ctg}^2 2x dx;$$

$$7. \int \frac{dx}{\cos^2(2x-1)};$$

$$8. \int \frac{3x-4}{x^2-4} dx;$$

Bo'laklab integrallang:

$$9. \int (6x - 2) \cos 3x dx; \quad 10. \int \ln(2x + 1) dx;$$

$$11. \int \arctg 7x dx; \quad 12. \int x^2 \cdot 5^{-x/2} dx.$$

Kasr-ratsional funksiya integralini hisoblang:

$$13. \int \frac{3x+1}{x^2+2x+5} dx;$$

$$14. \int \frac{x-8}{x(x-2)^2} dx;$$

$$15. \int \frac{3x-10}{(x+2)(x^2+4)} dx; \quad 16. \int \frac{2x^2-11x+3}{x^2-5x+4} dx.$$

Trigonometrik funksiya integralini hisoblang:

$$17. \int \sin^2 3x \cdot \cos^3 3x dx;$$

$$18. \int \sin 3x \cdot \cos 10x dx;$$

$$19. \int \operatorname{tg}^5 \frac{x}{2} dx; \quad 20. \int \frac{dx}{2-3\sin x};$$

$$21. \int \sin^2 5x \cdot \cos^2 5x dx.$$

Irratsional funksiyaning integralini hisoblang:

$$22. \int \frac{\sqrt[6]{x} dx}{\sqrt[3]{x^2-\sqrt{x}}};$$

$$23. \int \frac{(x+1) dx}{x \cdot \sqrt{x-2}};$$

$$24. \int x^2 \sqrt{1-x^2} dx; \quad 25. \int \frac{\sqrt[3]{1+\sqrt[4]{x}}}{\sqrt[5]{x}} dx;$$

Turli usullarni qo'llab integralni hisoblang:

$$26. \int \frac{(x+2) dx}{\sqrt{6+4x-x^2}}; \quad 27. \int \frac{dx}{\sin^2 4x \cdot \cos^2 4x};$$

$$28. \int \frac{x^3-3x^2-2x-7+\sqrt[4]{x}}{5x^2} dx; \quad 29. \int 2^{\sqrt{x}} dx;$$

$$30. \int \frac{e^x \cdot \sqrt{e^x-2}}{e^x-3} dx.$$

2-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{\sqrt[4]{7x-5}}$;
2. $\int \sin(3x - 5)dx$;
3. $\int \frac{dx}{x(1-\ln x)}$;
4. $\int \frac{3x^3 dx}{x^8+4}$;
5. $\int e^{tg2x} \frac{dx}{\cos^2 2x}$;
6. $\int ctg^2 3x dx$;
7. $\int \frac{dx}{\sin^2(1-2x)}$;
8. $\int \frac{5x+3}{4-x^2} dx$;

Bo'laklab integrallang:

9. $\int (1-x)\cos 2x dx$;
10. $\int \ln(2x-1) dx$;
11. $\int \operatorname{arcctg} 7x dx$;
12. $\int x^2 \cdot 4^{-x/2} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+2}{x^2-2x+2} dx$;
14. $\int \frac{5x-11}{(x-1)^2(x-2)} dx$;
15. $\int \frac{11x-4}{(x-4)(x^2+4)} dx$;
16. $\int \frac{2x^2-x-13}{x^2-x-2} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 3x \cdot \cos^2 3x dx$;
18. $\int \cos x \cdot \cos 3x dx$;
19. $\int tg^5 \frac{x}{3} dx$;
20. $\int \frac{dx}{5+3\cos x}$;
21. $\int \sin^2 2x \cdot \cos^2 2x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7}-\sqrt[6]{x^5}} dx$;
23. $\int \frac{(x-1)dx}{x\sqrt{x+2}}$;
24. $\int x^2\sqrt{4-x^2} dx$;
25. $\int x^{-2/3} \left(1+x^{1/2}\right)^{1/2} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-1)dx}{\sqrt{1-4x-x^2}}$;
27. $\int \frac{dx}{\sin^2 5x \cdot \cos^2 5x}$;
28. $\int \frac{2x^3-x^2+7-3x+\sqrt[3]{x}}{3x^3} dx$;
29. $\int 2^{-\sqrt{x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-3} dx$.

3-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos x dx}{\sqrt[5]{\sin^2 x}}$;
2. $\int \cos(2 - 5x) dx$;
3. $\int \frac{dx}{\cos^2 x(2tgx+1)}$;
4. $\int \frac{dx}{x \cdot \sqrt{1+\ln^2 x}}$;
5. $\int e^{x^5} \cdot x^4 dx$;
6. $\int tg^2 3x dx$;
7. $\int \frac{dx}{\sin^2(3x+5)}$;
8. $\int \frac{2x+1}{x^2-9} dx$;

Bo'laklab integrallang:

9. $\int (2x + 5)\sin 3x dx$;
10. $\int \ln(1 - 2x) dx$;
11. $\int \arcsin 2x dx$;
12. $\int x^2 \cdot 3^{-x/2} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-2}{x^2-6x+10} dx$;
14. $\int \frac{3x+2}{x(x+1)^2} dx$;
15. $\int \frac{3x-7}{(x+1)(x^2+4)} dx$;
16. $\int \frac{3x^2-13x-4}{x^2-4x-5} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 2x \cdot \cos^2 2x dx$;
18. $\int \sin x \cdot \sin 5x dx$;
19. $\int ctg^5 \frac{x}{3} dx$;
20. $\int \frac{dx}{2-3\cos x}$;
21. $\int \sin^2 4x \cdot \cos^2 4x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[3]{x})} dx$;
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+3}}$;
24. $\int \frac{x^2}{\sqrt{16-x^2}} dx$;
25. $\int \frac{\sqrt[3]{x^2-4} dx}{x^2}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{1-2x-x^2}}$;
27. $\int \frac{dx}{\sin^2 11x \cdot \cos^2 11x}$;
28. $\int \frac{7x^4-x^6-3x-6+\sqrt[4]{x^3}}{2x^5} dx$;
29. $\int \operatorname{arctg} \sqrt{x} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x+3} dx$.

4-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (3 - 2x)^{64} dx;$
2. $\int \cos(1 - 3x) dx;$
3. $\int \frac{e^{2x} dx}{1 + 3e^{2x}};$
4. $\int \frac{x^3 dx}{\sqrt{x^8 - 1}};$
5. $\int e^{\frac{1}{x}} \cdot \frac{dx}{x^2};$
6. $\int \operatorname{tg}^2 2x dx;$
7. $\int \frac{dx}{\cos^2(5x + 3)};$
8. $\int \frac{7x + 2}{9 - x^2} dx;$

Bo'laklab integrallang:

9. $\int (4x + 1) \sin 2x dx;$
10. $\int \ln(2 - 3x) dx;$
11. $\int \arccos 2x dx;$
12. $\int x^2 \cdot 2^{-\frac{x}{2}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x + 1}{x^2 + 4x + 5} dx;$
14. $\int \frac{7x + 11}{(x + 1)^2(x - 2)} dx;$
15. $\int \frac{3x + 15}{(x + 1)(x^2 + 5)} dx;$
16. $\int \frac{3x^2 - 2x - 31}{x^2 - x - 6} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 5x \cdot \cos^3 5x dx;$
18. $\int \sin 4x \cdot \sin 6x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{4 \sin x + 5};$
21. $\int \sin^2 3x \cdot \cos^2 3x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x}}{x(\sqrt{x} + \sqrt[3]{x})} dx;$
23. $\int \frac{(x - 3) dx}{x \cdot \sqrt{x + 2}};$
24. $\int x^2 \sqrt{16 - x^2} dx;$
25. $\int \frac{\sqrt{x^2 - 4} dx}{\sqrt[3]{x}};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x - 2) dx}{\sqrt{5 - 4x - x^2}};$
27. $\int \frac{dx}{\sin^2 7x \cdot \cos^2 7x};$
28. $\int \frac{x^8 - 5x^7 + 6 - 3x^6 + \sqrt[4]{x^{10}}}{2x^7} dx;$
29. $\int \operatorname{arcctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x - 1}}{e^x + 1} dx.$

5-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int x \cdot \sqrt[3]{x^2 + 1} dx;$
2. $\int \sin(2 - 4x) dx;$
3. $\int \frac{dx}{\cos^2 x(3+2tgx)};$
4. $\int \frac{x^4 dx}{\sqrt{1-x^{10}}};$
5. $\int 2^{\sqrt{x}} \cdot \frac{dx}{\sqrt{x}};$
6. $\int tg^2 \frac{x}{2} dx;$
7. $\int \frac{dx}{\cos^2(2-5x)};$
8. $\int \frac{3x-1}{16-x^2} dx;$

Bo'laklab integrallang:

9. $\int (3x + 1)\cos 2x dx;$
10. $\int \ln(2x - 3) dx;$
11. $\int \arccos 3x dx;$
12. $\int x^2 \cdot 4^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+1}{x^2-2x+17} dx;$
14. $\int \frac{6x-10}{(x+1)(x-3)^2} dx;$
15. $\int \frac{3x+1}{(x-1)(x^2+2)} dx;$
16. $\int \frac{2x^2+12x+19}{x^2+7x+10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 7x \cdot \cos^2 7x dx ;$
18. $\int \cos 2x \cdot \cos 3x dx;$
19. $\int ctg^5 4x dx;$
20. $\int \frac{dx}{3+5\cos x};$
21. $\int \sin^2 6x \cdot \cos^2 6x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}+\sqrt[3]{x}} dx ;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-3}} ;$
24. $\int \frac{x^2}{\sqrt{1-x^2}} dx;$
25. $\int x^{-1/4} \sqrt{1-x^{2/3}} dx ;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{5+2x-x^2}};$
27. $\int \frac{dx}{\sin^2 3x \cdot \cos^2 3x};$
28. $\int \frac{x^3-5x^5-3x-4+\sqrt[3]{x^5}}{2x^4} dx;$
29. $\int 3^{\sqrt{x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+2} dx.$

6-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt[4]{1+\ln x}}{x} dx;$
2. $\int \cos(2x - 7) dx;$
3. $\int \frac{dx}{\sin^2 3x \cdot (2+\operatorname{ctg} 3x)};$
4. $\int \frac{x^3 dx}{\sqrt{1-x^8}};$
5. $\int 2^{\cos 3x} \cdot \sin 3x dx;$
6. $\int \operatorname{tg}^2 \frac{x}{3} dx;$
7. $\int \frac{dx}{\sin^2(4x-3)};$
8. $\int \frac{2x-5}{x^2+16} dx;$

Bo'laklab integrallang:

9. $\int (4 - 2x) \sin 3x dx;$
10. $\int \ln(2 + 3x) dx;$
11. $\int \arcsin 3x dx;$
12. $\int x^2 \cdot 3^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+2}{x^2+8x+17} dx;$
14. $\int \frac{x+8}{(x-1)(x+2)^2} dx;$
15. $\int \frac{4x-10}{(x+2)(x^2+2)} dx;$
16. $\int \frac{3x^2+5x-10}{x^2+2x-8} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 9x \cdot \cos^2 9x dx;$
18. $\int \sin 5x \cdot \sin 9x dx;$
19. $\int \operatorname{ctg}^5 5x dx;$
20. $\int \frac{dx}{2+3\cos x};$
21. $\int \sin^2 10x \cdot \cos^2 10x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[4]{x^3+x}} dx;$
23. $\int \frac{(x+3)dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{4-x^2}} dx;$
25. $\int x^5 \cdot \sqrt[3]{1+x^4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+1)dx}{\sqrt{1-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 2x \cdot \cos^2 2x};$
28. $\int \frac{x^6-7x^5+4-4x^9+2\sqrt[4]{x^3}}{3x^6} dx;$
29. $\int 3^{-\sqrt{x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x+2} dx.$

7-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{2x}}{\sqrt{9+e^{2x}}} dx;$
2. $\int \cos(1+4x) dx;$
3. $\int \frac{dx}{\arcsin 2x \cdot \sqrt{1-4x^2}};$
4. $\int \frac{x dx}{\sqrt{3-x^4}};$
5. $\int 5^{-\sqrt{x}} \cdot \frac{dx}{\sqrt{x}};$
6. $\int \operatorname{ctg}^2 \frac{x}{5} dx;$
7. $\int \frac{dx}{\cos^2(3+2x)};$
8. $\int \frac{4x+3}{x^2+16} dx;$

Bo'laklab integrallang:

9. $\int (2-x) \sin 5x dx;$
10. $\int \ln(4-5x) dx;$
11. $\int \operatorname{arctg} 2x dx;$
12. $\int x^2 \cdot e^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+3} dx;$
14. $\int \frac{5x+1}{(x+2)(x-1)^2} dx;$
15. $\int \frac{5x-7}{(x+3)(x^2+2)} dx;$
16. $\int \frac{2x^2-5x+7}{x^2-4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 2x \cdot \cos^3 2x dx;$
18. $\int \cos x \cdot \sin 7x dx;$
19. $\int \operatorname{tg}^5 5x dx;$
20. $\int \frac{dx}{5-3\cos x};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}-x)} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+2}};$
24. $\int x^2 \sqrt{9-x^2} dx;$
25. $\int x^{-3}(1+x^3)^{-2/3} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{3-2x-x^2}};$
27. $\int \frac{dx}{\sin^2 6x \cdot \cos^2 6x};$
28. $\int \frac{x^2-2x^4-7x^3-3+\sqrt[4]{x^3}}{5x^3} dx;$
29. $\int \sin \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-1} dx.$

8-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\operatorname{tg} 2x}{\cos^2 2x} dx;$
2. $\int \sin(2 + 3x) dx;$
3. $\int \frac{e^{5x} dx}{e^{5x} - 8};$
4. $\int \frac{e^x dx}{\sqrt{1 - e^{2x}}};$
5. $\int 2^{\ln x} \cdot \frac{dx}{x};$
6. $\int \operatorname{ctg}^2 \frac{x}{2} dx;$
7. $\int \frac{dx}{\sin^2(4 - 7x)};$
8. $\int \frac{5x - 1}{x^2 + 9} dx;$

Bo'laklab integrallang:

9. $\int (3x - 4) \cos 5x dx;$
10. $\int \ln(5 + 3x) dx;$
11. $\int \operatorname{arcctg} 2x dx;$
12. $\int x^2 \cdot 2^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x - 2}{x^2 - 4x + 5} dx;$
14. $\int \frac{3x - 8}{(x - 3)(x - 2)^2} dx;$
15. $\int \frac{4x + 8}{(x - 1)(x^2 + 3)} dx;$
16. $\int \frac{3x^2 + 2x - 31}{x^2 + x - 6} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 10x \cdot \cos^2 10x dx;$
18. $\int \sin 3x \cdot \cos 2x dx;$
19. $\int \operatorname{tg}^5 4x dx;$
20. $\int \frac{dx}{3 + 5 \sin x};$
21. $\int \sin^2 13x \cdot \cos^2 13x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[3]{x^2 + x}} dx;$
23. $\int \frac{(x + 2) dx}{x \cdot \sqrt{x + 3}};$
24. $\int \frac{x^2}{\sqrt{9 - x^2}} dx;$
25. $\int \frac{x dx}{\sqrt[3]{1 + x^5}};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(8x - 11) dx}{\sqrt{5 + 4x - x^2}};$
27. $\int \frac{dx}{\sin^2 8x \cdot \cos^2 8x};$
28. $\int \frac{x^3 - 3x^4 - 5x^6 + 3 + 2\sqrt[4]{x^3}}{9x^5} dx;$
29. $\int \cos \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x + 3}}{e^x - 2} dx.$

9-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|---|------------------------------------|
| 1. $\int \frac{x^2}{\sqrt[5]{x^3+4}} dx;$ | 2. $\int \cos(3-4x) dx;$ |
| 3. $\int \frac{dx}{\arctg x \cdot (1+x^2)};$ | 4. $\int \frac{dx}{x(1+\ln^2 x)};$ |
| 5. $\int 3^{\text{ctg} x} \cdot \frac{dx}{\sin^2 x};$ | 6. $\int \text{tg}^2 5x dx;$ |
| 7. $\int \frac{dx}{\sin^2(7+3x)};$ | 8. $\int \frac{3x+4}{x^2-25} dx;$ |

Bo'laklab integrallang:

9. $\int (2x-3)\cos 3x dx;$ 10. $\int \ln(3-5x) dx;$
 11. $\int \text{arcctg} 3x dx;$ 12. $\int x^2 \cdot 4^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+3}{x^2-10x+29} dx;$ 14. $\int \frac{x-13}{(x+3)(x-1)^2} dx;$
 15. $\int \frac{9x+4}{(x+2)(x^2+3)} dx;$ 16. $\int \frac{3x^2+4x-34}{x^2+3x-10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 11x \cdot \cos^2 11x dx;$ 18. $\int \cos x \cdot \cos 5x dx;$
 19. $\int \text{ctg}^5 \frac{x}{6} dx;$ 20. $\int \frac{dx}{3\sin x + 2};$
 21. $\int \sin^2 7x \cdot \cos^2 7x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(4+\sqrt[3]{x})} dx;$ 23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-3}};$
 24. $\int x^2 \sqrt{25-x^2} dx;$ 25. $\int x^4 (1+2x^2)^{-2/3} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3)dx}{\sqrt{6-2x-x^2}};$ 27. $\int \frac{dx}{\sin^2 12x \cdot \cos^2 12x};$
 28. $\int \frac{x^3-4x-7x^2-2+\sqrt[3]{x^5}}{3x^2} dx;$ 29. $\int \frac{\arcsin x}{\sqrt{1+x}} dx;$
 30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+2} dx.$

10-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|---|--|
| 1. $\int \frac{1}{\sin^2 x \cdot \sqrt[3]{ctgx+1}} dx;$ | 2. $\int \sin(4x + 5) dx;$ |
| 3. $\int \frac{2^{9x} dx}{9-2^{9x}};$ | 4. $\int \frac{x^2 dx}{\sqrt{1-x^6}};$ |
| 5. $\int \frac{4^{\arctg 3x} \cdot dx}{1+9x^2};$ | 6. $\int ctg^2 4x dx;$ |
| 7. $\int \frac{dx}{\cos^2(5-2x)};$ | 8. $\int \frac{4x-1}{x^2+25} dx;$ |

Bo'laklab integrallang:

9. $\int (3 + 5x) \sin 2x dx;$ 10. $\int \ln(2x + 5) dx;$
 11. $\int \arctg 3x dx;$ 12. $\int x^2 \cdot 5^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+4}{x^2-10x+29} dx;$ 14. $\int \frac{x+4}{(x+3)(x+2)^2} dx;$
 15. $\int \frac{5x+18}{(x-4)(x^2+3)} dx;$ 16. $\int \frac{2x^2+7x-25}{x^2+x-12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 4x \cdot \cos^2 4x dx;$ 18. $\int \sin 3x \cdot \sin 5x dx;$
 19. $\int tg^5 \frac{x}{4} dx;$ 20. $\int \frac{dx}{5-3\sin x};$
 21. $\int \sin^2 15x \cdot \cos^2 15x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x}}{\sqrt{x} + \sqrt[3]{x^2}} dx;$ 23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x-3}};$
 24. $\int \frac{x^2}{\sqrt{25-x^2}} dx;$ 25. $\int \sqrt[3]{x} \cdot \sqrt[3]{1 + \sqrt{x^3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{4-4x-x^2}};$ 27. $\int \frac{dx}{\sin^2 9x \cdot \cos^2 9x};$
 28. $\int \frac{x^5-3x^4+2-5x^3+\sqrt[3]{x^2}}{8x^4} dx;$ 29. $\int \frac{\arccos x}{\sqrt{1+x}} dx;$
 30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+1} dx.$

11-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|--|--|
| 1. $\int \frac{\cos 2x dx}{\sqrt[3]{\sin^4 2x}}$; | 2. $\int \cos(5x - 1) dx$; |
| 3. $\int \frac{dx}{x \cdot (5 - \ln x)}$; | 4. $\int \frac{e^{3x} dx}{1 + e^{6x}}$; |
| 5. $\int \frac{5^{\ln 2x} \cdot dx}{x}$; | 6. $\int \operatorname{ctg}^2 6x dx$; |
| 7. $\int \frac{dx}{\sin^2(2-3x)}$; | 8. $\int \frac{7+3x}{25-x^2} dx$; |

Bo'laklab integrallang:

9. $\int (2 - 3x) \cos 5x dx$; 10. $\int \ln(3 - 2x) dx$;
 11. $\int \arccos 5x dx$; 12. $\int x^2 \cdot 3^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-1}{x^2+6x+10} dx$; 14. $\int \frac{3x-7}{(x-2)(x-3)^2} dx$;
 15. $\int \frac{7x-26}{(x+4)(x^2+2)} dx$; 16. $\int \frac{2x^2+13x-5}{x^2+3x-4} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 9x \cdot \cos^3 9x dx$; 18. $\int \sin 3x \cdot \cos 7x dx$;
 19. $\int \operatorname{tg}^5 \frac{x}{7} dx$; 20. $\int \frac{dx}{5+4\sin x}$;
 21. $\int \sin^2 17x \cdot \cos^2 17x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x - \sqrt[3]{x^2}} dx$; 23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-2}}$;
 24. $\int x^2 \sqrt{1 - 4x^2} dx$; 25. $\int x^{3/2} \sqrt{1 + x^{3/5}} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{3+2x-x^2}}$; 27. $\int \frac{dx}{\sin^2 10x \cdot \cos^2 10x}$;
 28. $\int \frac{x^5 - 5x^6 - 3x^7 - 5 + \sqrt[3]{x^5}}{2x^6} dx$; 29. $\int \sin \sqrt{x-1} dx$;
 30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-3} dx$.

12-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\ln(2x+1)}dx}{2x+1}$;
2. $\int \cos(4 - 3x)dx$;
3. $\int \frac{dx}{\cos^2 x \cdot (1+3tgx)}$;
4. $\int \frac{e^x dx}{\sqrt{9+e^{2x}}}$;
5. $\int 3^{\sqrt{x-1}} \cdot \frac{dx}{\sqrt{x-1}}$;
6. $\int tg^2 4x dx$;
7. $\int \frac{dx}{\sin^2(1+4x)}$;
8. $\int \frac{3x+5}{1-4x^2} dx$;

Bo'laklab integrallang:

9. $\int (2 - 5x)\cos 4x dx$; 10. $\int \ln(2 + 5x) dx$;
11. $\int \arcsin 5x dx$; 12. $\int x^2 \cdot 2^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+5}{x^2+4x+8} dx$;
14. $\int \frac{3x+7}{(x+2)(x+3)^2} dx$;
15. $\int \frac{5x+13}{(x-1)(x^2+5)} dx$; 16. $\int \frac{3x^2-7x-38}{x^2-2x-8} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 6x \cdot \cos^2 6x dx$;
18. $\int \sin 4x \cdot \cos 2x dx$;
19. $\int ctg^5 \frac{x}{7} dx$; 20. $\int \frac{dx}{5-4\sin x}$;
21. $\int \sin^2 14x \cdot \cos^2 14x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7} + \sqrt[6]{x^5}} dx$;
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-5}}$;
24. $\int \frac{x^2}{\sqrt{1-4x^2}} dx$; 25. $\int x^3 \cdot \sqrt[4]{1+x^4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(3x-6)dx}{\sqrt{10-6x-x^2}}$; 27. $\int \frac{dx}{\sin^2 14x \cdot \cos^2 14x}$;
28. $\int \frac{x^8-4x^6+5-3x^7+\sqrt[4]{x^7}}{6x^7} dx$; 29. $\int \operatorname{arcctg} \sqrt{x+1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x-3} dx$.

13-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2 dx}{\sqrt[5]{(3+2x^3)^4}}$;
2. $\int \sin(5 - 2x) dx$;
3. $\int \frac{dx}{\arcsin 3x \cdot \sqrt{1-9x^2}}$;
4. $\int \frac{dx}{x(1+\lg^2 x)}$;
5. $\int 7^{\sqrt{x+1}} \cdot \frac{dx}{\sqrt{x+1}}$;
6. $\int tg^2 6x dx$;
7. $\int \frac{dx}{\cos^2(5x-1)}$;
8. $\int \frac{5x+4}{1-9x^2} dx$;

Bo'laklab integrallang:

9. $\int (2x + 1) \sin 5x dx$; 10. $\int \ln(4x + 1) dx$;
11. $\int \arcsin 4x dx$; 12. $\int x^2 \cdot 4^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-5}{x^2-8x+20} dx$;
14. $\int \frac{3x-4}{(x-1)(x-2)^2} dx$;
15. $\int \frac{5x+8}{(x-2)(x^2+5)} dx$;
16. $\int \frac{2x^2-7x-3}{x^2-6x+5} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 7x \cdot \cos^3 7x dx$;
18. $\int \sin x \cdot \sin 3x dx$;
19. $\int ctg^5 \frac{x}{4} dx$;
20. $\int \frac{dx}{4+5\cos x}$;
21. $\int \sin^2 9x \cdot \cos^2 9x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[6]{x})} dx$;
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+1}}$;
24. $\int \frac{x^2}{\sqrt{1-9x^2}} dx$;
25. $\int x^{1/3} \left(2 + x^{2/5}\right)^{1/4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x+1)dx}{\sqrt{1-8x-x^2}}$;
27. $\int \frac{dx}{\sin^2 17x \cdot \cos^2 17x}$;
28. $\int \frac{3x-5x^3-6x^2-1+\sqrt[5]{x^3}}{11x^2} dx$;
29. $\int \cos \sqrt{x-1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+3} dx$.

14-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \sqrt{\frac{\arcsin x}{1-x^2}} dx;$
2. $\int \sin(7x - 4) dx;$
3. $\int \frac{dx}{\arctg 5x \cdot (1+25x^2)};$
4. $\int \frac{dx}{x\sqrt{1-\ln^2 x}};$
5. $\int 7^{1+\lg x} \cdot \frac{dx}{x};$
6. $\int \operatorname{ctg}^2 7x dx;$
7. $\int \frac{dx}{\cos^2(7x+2)};$
8. $\int \frac{4x+2}{x^2-81} dx;$

Bo'laklab integrallang:

9. $\int (3x + 7) \sin 4x dx;$
10. $\int \ln(4x - 1) dx;$
11. $\int \arccos 4x dx;$
12. $\int x^2 \cdot 5^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-1}{x^2-10x+26} dx;$
14. $\int \frac{6x+10}{(x-1)(x+3)^2} dx;$
15. $\int \frac{3x+21}{(x+2)(x^2+5)} dx;$
16. $\int \frac{3x^2+x-38}{x^2-x-12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 4x \cdot \cos^3 4x dx;$
18. $\int \cos 2x \cdot \cos 5x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{5} dx;$
20. $\int \frac{dx}{3\sin x + 5};$
21. $\int \sin^2 20x \cdot \cos^2 20x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(1+\sqrt[6]{x})} dx;$
23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x+1}};$
24. $\int x^2 \sqrt{1-9x^2} dx;$
25. $\int x^4 \cdot \sqrt[3]{(1+x^3)^2} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-6)dx}{\sqrt{1+8x-x^2}};$
27. $\int \frac{dx}{\sin^2 18x \cdot \cos^2 18x};$
28. $\int \frac{x^6-3x^5+3-6x^4+\sqrt[3]{x^5}}{2x^5} dx;$
29. $\int \sin \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-1} dx.$

15-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\arctg 3x}}{1+9x^2} dx;$
2. $\int \cos(6 - 5x) dx;$
3. $\int \frac{dx}{(x+1) \cdot (2-\ln(x+1))};$
4. $\int \frac{2^{3x} dx}{\sqrt{9+4^{3x}}};$
5. $\int 4^{\arcsin x} \cdot \frac{dx}{\sqrt{1-x^2}};$
6. $\int \operatorname{ctg}^2 5x dx;$
7. $\int \frac{dx}{\sin^2(3-4x)};$
8. $\int \frac{7-2x}{81-x^2} dx;$

Bo'laklab integrallang:

9. $\int (3 - 2x) \cos 6x dx;$
10. $\int \ln(4 - 3x) dx;$
11. $\int \arctg 5x dx;$
12. $\int x^2 \cdot 3^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+3}{x^2-8x+17} dx;$
14. $\int \frac{2x-14}{(x+1)(x-3)^2} dx;$
15. $\int \frac{5x+14}{(x-2)(x^2+4)} dx;$
16. $\int \frac{3x^2+15x+8}{x^2+4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 15x \cdot \cos^2 15x dx;$
18. $\int \sin 10x \cdot \cos 15x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{8} dx;$
20. $\int \frac{dx}{4+5\sin x};$
21. $\int \sin^2 16x \cdot \cos^2 16x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(\sqrt[3]{x}-5)} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-3}};$
24. $\int x^2 \sqrt{1-25x^2} dx;$
25. $\int x^{-2/3} \sqrt{1+x^{1/3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+5)dx}{\sqrt{2+6x-x^2}};$
27. $\int \frac{dx}{\sin^2 13x \cdot \cos^2 13x};$
28. $\int \frac{x^4-3x^3-4x^2-3+\sqrt[5]{x^2}}{8x^3} dx;$
29. $\int \arctg \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x+5} dx.$

16-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{(\arccos x)^2 \sqrt{1-x^2}}$;
2. $\int \sin(5 + 2x) dx$;
3. $\int \frac{dx}{\cos^2 2x \cdot (1+3tg2x)}$;
4. $\int \frac{dx}{x \sqrt{lg^2 x - 4}}$;
5. $\int 8^{\sqrt[3]{x}} \cdot \frac{dx}{\sqrt[3]{x^2}}$;
6. $\int tg^2 \frac{x}{5} dx$;
7. $\int \frac{dx}{\cos^2(3-5x)}$;
8. $\int \frac{12x+5}{81+x^2} dx$;

Bo'laklab integrallang:

9. $\int (4x - 5) \sin 6x dx$; 10. $\int \ln(5 - 4x) dx$;
11. $\int \operatorname{arcctg} 5x dx$; 12. $\int x^2 \cdot 2^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-4}{x^2+6x+13} dx$;
14. $\int \frac{7x+11}{(x-2)(x+3)^2} dx$;
15. $\int \frac{3x-15}{(x+3)(x^2+3)} dx$;
16. $\int \frac{2x^2+x-37}{x^2-x+20} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 8x \cdot \cos^2 8x dx$;
18. $\int \sin 5x \cdot \cos 8x dx$;
19. $\int \operatorname{ctg}^5 3x dx$;
20. $\int \frac{dx}{4-5\sin x}$;
21. $\int \sin^2 11x \cdot \cos^2 11x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(3+\sqrt{x})} dx$;
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+3}}$;
24. $\int \frac{x^2}{\sqrt{1-25x^2}} dx$;
25. $\int \frac{dx}{x^2(1+x^3)^{4/3}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{2-8x-x^2}}$;
27. $\int \frac{dx}{\sin^2 21x \cdot \cos^2 21x}$;
28. $\int \frac{x^7-5x^6+2-9x^8+\sqrt[5]{x^{11}}}{4x^7} dx$;
29. $\int 5^{\sqrt{x+1}} dx$;
30. $\int \frac{e^{x \cdot \sqrt{e^x-5}}}{e^{x+2}} dx$.

17-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (\cos x + 2)^{21} \cdot \sin x dx$;
2. $\int \cos(2 - 7x) dx$;
3. $\int \frac{5^{3x} dx}{1 - 5^{3x}}$;
4. $\int \frac{x^2 dx}{1 + x^2}$;
5. $\int \frac{e^{\arccos 2x} dx}{\sqrt{1 - 4x^2}}$;
6. $\int \operatorname{ctg}^2 \frac{x}{3} dx$;
7. $\int \frac{dx}{\sin^2(7x - 5)}$;
8. $\int \frac{2x + 7}{25x^2 - 1} dx$;

Bo'laklab integrallang:

9. $\int (3 + 2x) \sin 4x dx$;
10. $\int \ln(1 - 4x) dx$;
11. $\int \arcsin 7x dx$;
12. $\int x^2 \cdot 4^{-5x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x - 3}{x^2 - 4x + 8} dx$;
14. $\int \frac{7x - 4}{(x + 3)(x - 2)^2} dx$;
15. $\int \frac{8x + 4}{(x - 3)(x^2 + 5)} dx$;
16. $\int \frac{3x^2 - x - 46}{x^2 - 2x - 15} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 10x \cdot \cos^3 10x dx$;
18. $\int \cos 3x \cdot \cos 7x dx$;
19. $\int \operatorname{tg}^5 3x dx$;
20. $\int \frac{dx}{3 - 5 \sin x}$;
21. $\int \sin^2 18x \cdot \cos^2 18x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x} + x)} dx$;
23. $\int \frac{(x - 1) dx}{x \cdot \sqrt{x + 3}}$;
24. $\int x^2 \sqrt{1 - 16x^2} dx$;
25. $\int \frac{\sqrt[3]{1 + \sqrt[3]{x}} dx}{\sqrt{x}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x + 3) dx}{\sqrt{5 - 6x - x^2}}$;
27. $\int \frac{dx}{\sin^2 19x \cdot \cos^2 19x}$;
28. $\int \frac{x^7 - 5x^5 - 4x^3 - 2 + \sqrt[3]{x^8}}{2x^6} dx$;
29. $\int \frac{\arcsin x}{\sqrt{1 - x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x + 2}}{e^x - 5} dx$.

18-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{3x}}{\sqrt[4]{11+e^{3x}}} dx;$
2. $\int \sin(5 + 6x) dx;$
3. $\int \frac{dx}{\arctg 2x \cdot (1+4x^2)};$
4. $\int \frac{x^3 dx}{\sqrt{1+x^8}};$
5. $\int 9^{\frac{2}{x}} \cdot \frac{dx}{x^2};$
6. $\int tg^2 7x dx;$
7. $\int \frac{dx}{\cos^2(2+3x)};$
8. $\int \frac{3x-8}{25x^2+1} dx;$

Bo'laklab integrallang:

9. $\int (5 - 2x) \cos 4x dx;$
10. $\int \ln(3x - 2) dx;$
11. $\int \arccos 7x dx;$
12. $\int x^2 \cdot 5^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-5}{x^2+10x+26} dx;$
14. $\int \frac{3x+4}{(x+1)(x+2)^2} dx;$
15. $\int \frac{5x-11}{(x-3)(x^2+4)} dx;$
16. $\int \frac{2x^2-12x+19}{x^2-7x+10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 5x \cdot \cos^2 5x dx;$
18. $\int \sin 2x \cdot \sin 4x dx;$
19. $\int ctg^5 \frac{x}{6} dx;$
20. $\int \frac{dx}{3-5\cos x};$
21. $\int \sin^2 19x \cdot \cos^2 19x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x-\sqrt[4]{x^3}} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-1}};$
24. $\int \frac{x^2}{\sqrt{1-16x^2}} dx;$
25. $\int x^{-1/3} (1 + 3x^{1/2})^{1/5} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{3+8x-x^2}};$
27. $\int \frac{dx}{\sin^2 15x \cdot \cos^2 15x};$
28. $\int \frac{x^2-3x^3-9x^4+1+\sqrt[5]{x^4}}{6x^4} dx;$
29. $\int \cos \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+5}}{e^x-2} dx.$

19-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|---|---|
| 1. $\int \frac{1}{x \cdot \sqrt[3]{5-\ln x}} dx;$ | 2. $\int \sin(8-3x) dx;$ |
| 3. $\int \frac{dx}{\sin^2 5x \cdot (7+\operatorname{ctg} 5x)};$ | 4. $\int \frac{x^2 dx}{\sqrt{1+x^6}};$ |
| 5. $\int \frac{e^{\operatorname{arctg} 5x} dx}{1+25x^2};$ | 6. $\int \operatorname{tg}^2 \frac{x}{4} dx;$ |
| 7. $\int \frac{dx}{\cos^2(1-7x)};$ | 8. $\int \frac{x+1}{4x^2-9} dx;$ |

Bo'laklab integrallang:

9. $\int (1-5x)\sin 6x dx;$ 10. $\int \ln(2x-5) dx;$
 11. $\int \operatorname{arctg} 4x dx;$ 12. $\int x^2 \cdot 3^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-3}{x^2+8x+20} dx;$ 14. $\int \frac{3x+2}{(x+2)(x+1)^2} dx;$
 15. $\int \frac{16x-1}{(x-5)(x^2+2)} dx;$ 16. $\int \frac{3x^2+20x+34}{x^2+7x+12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 8x \cdot \cos^3 8x dx;$ 18. $\int \sin 2x \cdot \cos 4x dx;$
 19. $\int \operatorname{ctg}^5 2x dx;$ 20. $\int \frac{dx}{5-4\cos x};$
 21. $\int \sin^2 12x \cdot \cos^2 12x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}-\sqrt[3]{x}} dx;$ 23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x-2}};$
 24. $\int x^2 \sqrt{36-x^2} dx;$ 25. $\int x^{1/2} (1-x^{1/3})^{1/4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-5)dx}{\sqrt{3+6x-x^2}};$ 27. $\int \frac{dx}{\sin^2 20x \cdot \cos^2 20x};$
 28. $\int \frac{x-4x^2-9x^3+\sqrt[5]{x^7}-1}{5x^3} dx;$ 29. $\int e^{\sqrt{2x+1}} dx;$
 30. $\int \frac{e^{x \cdot \sqrt{e^x-5}}}{e^x-3} dx.$

20-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^5 dx}{\sqrt{1+x^6}}$;
2. $\int \sin(3x - 5) dx$;
3. $\int \frac{dx}{\cos^2 x(2tgx+1)}$;
4. $\int \frac{x^3 dx}{\sqrt{x^8-1}}$;
5. $\int 2^{\sqrt{x}} \cdot \frac{dx}{\sqrt{x}}$;
6. $\int tg^2 \frac{x}{3} dx$;
7. $\int \frac{dx}{\cos^2(3+2x)}$;
8. $\int \frac{5x-1}{x^2+9} dx$;

Bo'laklab integrallang:

9. $\int (2x - 3)\cos 3x dx$; 10. $\int \ln(2x + 5) dx$;
11. $\int \arccos 5x dx$; 12. $\int x^2 \cdot 2^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-5}{x^2-8x+20} dx$;
14. $\int \frac{6x+10}{(x-1)(x+3)^2} dx$;
15. $\int \frac{5x+14}{(x-2)(x^2+4)} dx$; 16. $\int \frac{2x^2+x-37}{x^2-x+20} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 10x \cdot \cos^3 10x dx$;
18. $\int \sin 2x \cdot \sin 4x dx$;
19. $\int ctg^5 2x dx$; 20. $\int \frac{dx}{2-3\sin x}$;
21. $\int \sin^2 2x \cdot \cos^2 2x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[3]{x})} dx$;
23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x+2}}$;
24. $\int \frac{x^2}{\sqrt{1-x^2}} dx$; 25. $\int x^5 \cdot \sqrt[3]{1+x^4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{3-2x-x^2}}$; 27. $\int \frac{dx}{\sin^2 8x \cdot \cos^2 8x}$;
28. $\int \frac{x^3-4x-7x^2-2+\sqrt[3]{x^5}}{3x^2} dx$; 29. $\int \frac{\arccos x}{\sqrt{1+x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-3} dx$.

21-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|--|---|
| 1. $\int \frac{dx}{\sqrt[4]{7x-5}}$; | 2. $\int \cos(2-5x)dx$; |
| 3. $\int \frac{e^{2x}dx}{1+3e^{2x}}$; | 4. $\int \frac{x^4 dx}{\sqrt{1-x^{10}}}$; |
| 5. $\int 2^{\cos 3x} \cdot \sin 3x dx$; | 6. $\int \operatorname{ctg}^2 \frac{x}{5} dx$; |
| 7. $\int \frac{dx}{\sin^2(4-7x)}$; | 8. $\int \frac{3x+4}{x^2-25} dx$; |

Bo'laklab integrallang:

9. $\int (3+5x)\sin 2x dx$; 10. $\int \ln(3-2x) dx$;
11. $\int \arcsin 5x dx$; 12. $\int x^2 \cdot 4^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-1}{x^2-10x+26} dx$; 14. $\int \frac{2x-14}{(x+1)(x-3)^2} dx$;
15. $\int \frac{3x-15}{(x+3)(x^2+3)} dx$; 16. $\int \frac{3x^2-x-46}{x^2-2x-15} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 5x \cdot \cos^2 5x dx$; 18. $\int \sin 2x \cdot \cos 4x dx$;
19. $\int \operatorname{tg}^5 \frac{x}{2} dx$; 20. $\int \frac{dx}{5+3\cos x}$;
21. $\int \sin^2 4x \cdot \cos^2 4x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x}}{x(\sqrt{x}+\sqrt[3]{x})} dx$; 23. $\int \frac{(x+2)dx}{x\sqrt{x-3}}$;
24. $\int \frac{x^2}{\sqrt{4-x^2}} dx$; 25. $\int x^{-3}(1+x^3)^{-2/3} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(8x-11)dx}{\sqrt{5+4x-x^2}}$; 27. $\int \frac{dx}{\sin^2 12x \cdot \cos^2 12x}$;
28. $\int \frac{x^5-3x^4+2-5x^3+\sqrt[3]{x^2}}{8x^4} dx$; 29. $\int \sin \sqrt{x-1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x-3} dx$.

22-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos x dx}{\sqrt[5]{\sin^2 x}}$;
2. $\int \cos(1 - 3x) dx$;
3. $\int \frac{dx}{\cos^2 x(3+2tgx)}$;
4. $\int \frac{x^3 dx}{\sqrt{1-x^8}}$;
5. $\int 5^{-\sqrt{x}} \cdot \frac{dx}{\sqrt{x}}$;
6. $\int ctg^2 \frac{x}{2} dx$;
7. $\int \frac{dx}{\sin^2(7+3x)}$;
8. $\int \frac{4x-1}{x^2+25} dx$;

Bo'laklab integrallang:

9. $\int (2 - 3x) \cos 5x dx$; 10. $\int \ln(2 + 5x) dx$;
11. $\int \arcsin 4x dx$; 12. $\int x^2 \cdot 5^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+3}{x^2-8x+17} dx$;
14. $\int \frac{7x+11}{(x-2)(x+3)^2} dx$;
15. $\int \frac{8x+4}{(x-3)(x^2+5)} dx$; 16. $\int \frac{2x^2-12x+19}{x^2-7x+10} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 8x \cdot \cos^3 8x dx$;
18. $\int \sin 3x \cdot \cos 10x dx$;
19. $\int tg^5 \frac{x}{3} dx$; 20. $\int \frac{dx}{2-3\cos x}$;
21. $\int \sin^2 3x \cdot \cos^2 3x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x} + \sqrt[3]{x}} dx$;
23. $\int \frac{(x+3)dx}{x \cdot \sqrt{x-2}}$;
24. $\int x^2 \sqrt{9-x^2} dx$; 25. $\int \frac{xdx}{\sqrt[3]{1+x^5}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3)dx}{\sqrt{6-2x-x^2}}$; 27. $\int \frac{dx}{\sin^2 9x \cdot \cos^2 9x}$;
28. $\int \frac{x^5-5x^6-3x^7-5+\sqrt[3]{x^5}}{2x^6} dx$; 29. $\int \operatorname{arcctg} \sqrt{x+1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+3} dx$.

23-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (3 - 2x)^{64} dx;$
2. $\int \sin(2 - 4x) dx;$
3. $\int \frac{dx}{\sin^2 3x \cdot (2 + \operatorname{ctg} 3x)};$
4. $\int \frac{x dx}{\sqrt{3-x^4}};$
5. $\int 2^{\ln x} \cdot \frac{dx}{x};$
6. $\int \operatorname{tg}^2 5x dx;$
7. $\int \frac{dx}{\cos^2(5-2x)};$
8. $\int \frac{7+3x}{25-x^2} dx;$

Bo'laklab integrallang:

9. $\int (2 - 5x) \cos 4x dx;$
10. $\int \ln(4x + 1) dx;$
11. $\int \arccos 4x dx;$
12. $\int x^2 \cdot 3^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-4}{x^2+6x+13} dx;$
14. $\int \frac{7x-4}{(x+3)(x-2)^2} dx;$
15. $\int \frac{5x-11}{(x-3)(x^2+4)} dx;$
16. $\int \frac{3x^2+20x+34}{x^2+7x+12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 3x \cdot \cos^3 3x dx;$
18. $\int \cos x \cdot \cos 3x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{3} dx;$
20. $\int \frac{dx}{4 \sin x + 5};$
21. $\int \sin^2 6x \cdot \cos^2 6x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[4]{x^3+x}} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+2}};$
24. $\int \frac{x^2}{\sqrt{9-x^2}} dx;$
25. $\int x^4(1 + 2x^2)^{-2/3} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{4-4x-x^2}};$
27. $\int \frac{dx}{\sin^2 10x \cdot \cos^2 10x};$
28. $\int \frac{x^8-4x^6+5-3x^7+\sqrt[4]{x^7}}{6x^7} dx;$
29. $\int \cos \sqrt{x-1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-1} dx.$

24-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int x \cdot \sqrt[3]{x^2 + 1} dx;$
2. $\int \cos(2x - 7) dx;$
3. $\int \frac{dx}{\arcsin 2x \cdot \sqrt{1-4x^2}};$
4. $\int \frac{e^x dx}{\sqrt{1-e^{2x}}};$
5. $\int 3^{ctg x} \cdot \frac{dx}{\sin^2 x};$
6. $\int ctg^2 4x dx;$
7. $\int \frac{dx}{\sin^2(2-3x)};$
8. $\int \frac{3x+5}{1-4x^2} dx;$

Bo'laklab integrallang:

9. $\int (2x + 1) \sin 5x dx;$
10. $\int \ln(4x - 1) dx;$
11. $\int \arctg 5x dx;$
12. $\int x^2 \cdot 2^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-3}{x^2-4x+8} dx;$
14. $\int \frac{3x+4}{(x+1)(x+2)^2} dx;$
15. $\int \frac{16x-1}{(x-5)(x^2+2)} dx;$
16. $\int \frac{2x^2-11x+3}{x^2-5x+4} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 3x \cdot \cos^2 3x dx;$
18. $\int \sin x \cdot \sin 5x dx;$
19. $\int ctg^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{3+5\cos x};$
21. $\int \sin^2 10x \cdot \cos^2 10x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}-x)} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x+3}};$
24. $\int x^2 \sqrt{25 - x^2} dx;$
25. $\int \sqrt[3]{x} \cdot \sqrt[3]{1 + \sqrt{x^3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{3+2x-x^2}};$
27. $\int \frac{dx}{\sin^2 14x \cdot \cos^2 14x};$
28. $\int \frac{3x-5x^3-6x^2-1+\sqrt[5]{x^3}}{11x^2} dx;$
29. $\int \sin \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x+5} dx.$

25-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt[4]{1+\ln x}}{x} dx;$
2. $\int \cos(1 + 4x) dx;$
3. $\int \frac{e^{5x} dx}{e^{5x}-8};$
4. $\int \frac{dx}{x(1+\ln^2 x)};$
5. $\int \frac{4^{\operatorname{arctg} 3x} \cdot dx}{1+9x^2};$
6. $\int \operatorname{ctg}^2 6x dx;$
7. $\int \frac{dx}{\sin^2(1+4x)};$
8. $\int \frac{5x+4}{1-9x^2} dx;$

Bo'laklab integrallang:

9. $\int (3x + 7) \sin 4x dx;$
10. $\int \ln(4 - 3x) dx;$
11. $\int \operatorname{arctg} 5x dx;$
12. $\int x^2 \cdot 4^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-5}{x^2+10x+26} dx;$
14. $\int \frac{3x+2}{(x+2)(x+1)^2} dx;$
15. $\int \frac{3x-10}{(x+2)(x^2+4)} dx;$
16. $\int \frac{2x^2-x-13}{x^2-x-2} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 2x \cdot \cos^2 2x dx;$
18. $\int \sin 4x \cdot \sin 6x dx;$
19. $\int \operatorname{ctg}^5 4x dx;$
20. $\int \frac{dx}{2+3\cos x};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[3]{x^2+x}} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-3}};$
24. $\int \frac{x^2}{\sqrt{25-x^2}} dx;$
25. $\int x^{3/2} \sqrt{1+x^{3/5}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(3x-6)dx}{\sqrt{10-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 17x \cdot \cos^2 17x};$
28. $\int \frac{x^6-3x^5+3-6x^4+\sqrt[3]{x^5}}{2x^5} dx;$
29. $\int \operatorname{arctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-5}}{e^x+2} dx.$

26-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{2x}}{\sqrt{9+e^{2x}}} dx;$
2. $\int \sin(2 + 3x) dx;$
3. $\int \frac{dx}{\arctg x \cdot (1+x^2)};$
4. $\int \frac{x^2 dx}{\sqrt{1-x^6}};$
5. $\int \frac{5^{\ln 2x} \cdot dx}{x};$
6. $\int tg^2 4x dx;$
7. $\int \frac{dx}{\cos^2(5x-1)};$
8. $\int \frac{4x+2}{x^2-81} dx;$

Bo'laklab integrallang:

9. $\int (3 - 2x) \cos 6x dx;$
10. $\int \ln(5 - 4x) dx;$
11. $\int \arcsin 7x dx;$
12. $\int x^2 \cdot 5^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-3}{x^2+8x+20} dx;$
14. $\int \frac{x-8}{x(x-2)^2} dx;$
15. $\int \frac{11x-4}{(x-4)(x^2+4)} dx;$
16. $\int \frac{3x^2-13x-4}{x^2-4x-5} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 5x \cdot \cos^3 5x dx;$
18. $\int \cos 2x \cdot \cos 3x dx;$
19. $\int ctg^5 5x dx;$
20. $\int \frac{dx}{5-3\cos x};$
21. $\int \sin^2 13x \cdot \cos^2 13x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(4+\sqrt[3]{x})} dx;$
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x-3}};$
24. $\int x^2 \sqrt{1-4x^2} dx;$
25. $\int x^3 \cdot \sqrt[4]{1+x^4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x+1)dx}{\sqrt{1-8x-x^2}};$
27. $\int \frac{dx}{\sin^2 18x \cdot \cos^2 18x};$
28. $\int \frac{x^4-3x^3-4x^2-3+\sqrt[5]{x^2}}{8x^3} dx;$
29. $\int 5^{\sqrt{x+1}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-5} dx.$

27-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\operatorname{tg} 2x}{\cos^2 2x} dx;$
2. $\int \cos(3 - 4x) dx;$
3. $\int \frac{2^{9x} dx}{9 - 2^{9x}};$
4. $\int \frac{e^{3x} dx}{1 + e^{6x}};$
5. $\int 3^{\sqrt{x-1}} \cdot \frac{dx}{\sqrt{x-1}};$
6. $\int \operatorname{tg}^2 6x dx;$
7. $\int \frac{dx}{\cos^2(7x+2)};$
8. $\int \frac{7-2x}{81-x^2} dx;$

Bo'laklab integrallang:

9. $\int (4x - 5) \sin 6x dx;$
10. $\int \ln(1 - 4x) dx;$
11. $\int \arccos 7x dx;$
12. $\int x^2 \cdot 3^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+5} dx;$
14. $\int \frac{5x-11}{(x-1)^2(x-2)} dx;$
15. $\int \frac{3x-7}{(x+1)(x^2+4)} dx;$
16. $\int \frac{3x^2-2x-31}{x^2-x-6} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 7x \cdot \cos^2 7x dx;$
18. $\int \sin 5x \cdot \sin 9x dx;$
19. $\int \operatorname{tg}^5 5x dx;$
20. $\int \frac{dx}{3+5\sin x};$
21. $\int \sin^2 7x \cdot \cos^2 7x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x}}{\sqrt{x} + \sqrt[3]{x^2}} dx;$
23. $\int \frac{(x-1) dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{1-4x^2}} dx;$
25. $\int x^{1/3} \left(2 + x^{2/5}\right)^{1/4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-6) dx}{\sqrt{1+8x-x^2}};$
27. $\int \frac{dx}{\sin^2 13x \cdot \cos^2 13x};$
28. $\int \frac{x^7 - 5x^6 + 2 - 9x^8 + \sqrt[5]{x^{11}}}{4x^7} dx;$
29. $\int \frac{\arcsin x}{\sqrt{1-x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x + 5}}{e^x - 2} dx.$

28-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2}{\sqrt[5]{x^3+4}} dx;$
2. $\int \sin(4x + 5) dx;$
3. $\int \frac{dx}{x \cdot (5 - \ln x)};$
4. $\int \frac{e^x dx}{\sqrt{9+e^{2x}}};$
5. $\int 7\sqrt{x+1} \cdot \frac{dx}{\sqrt{x+1}};$
6. $\int \operatorname{ctg}^2 7x dx;$
7. $\int \frac{dx}{\sin^2(3-4x)};$
8. $\int \frac{12x+5}{81+x^2} dx;$

Bo'laklab integrallang:

9. $\int (3 + 2x) \sin 4x dx;$
10. $\int \ln(3x - 2) dx;$
11. $\int \operatorname{arctg} 4x dx;$
12. $\int x^2 \cdot 5^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+2}{x^2-2x+2} dx;$
14. $\int \frac{3x+2}{x(x+1)^2} dx;$
15. $\int \frac{3x+15}{(x+1)(x^2+5)} dx;$
16. $\int \frac{2x^2+12x+19}{x^2+7x+10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 9x \cdot \cos^2 9x dx;$
18. $\int \cos x \cdot \sin 7x dx;$
19. $\int \operatorname{tg}^5 4x dx;$
20. $\int \frac{dx}{3\sin x + 2};$
21. $\int \sin^2 15x \cdot \cos^2 15x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x - \sqrt[3]{x^2}} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-5}};$
24. $\int \frac{x^2}{\sqrt{1-9x^2}} dx;$
25. $\int x^4 \cdot \sqrt[3]{(1+x^3)^2} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+5)dx}{\sqrt{2+6x-x^2}};$
27. $\int \frac{dx}{\sin^2 21x \cdot \cos^2 21x};$
28. $\int \frac{x^7 - 5x^5 - 4x^3 - 2 + \sqrt[3]{x^8}}{2x^6} dx;$
29. $\int \cos \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x - 5}}{e^x - 3} dx.$

29-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{\sin^2 x \cdot \sqrt[3]{ctgx+1}} dx;$
2. $\int \cos(5x - 1) dx;$
3. $\int \frac{dx}{\cos^2 x \cdot (1+3tgx)};$
4. $\int \frac{dx}{x(1+lg^2 x)};$
5. $\int 7^{1+lgx} \cdot \frac{dx}{x};$
6. $\int ctg^2 5x dx;$
7. $\int \frac{dx}{\cos^2(3-5x)};$
8. $\int \frac{2x+7}{25x^2-1} dx;$

Bo'laklab integrallang:

9. $\int (5 - 2x) \cos 4x dx;$
10. $\int \ln(2x - 5) dx;$
11. $\int \arctg 7x dx;$
12. $\int x^2 \cdot 4^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-2}{x^2-6x+10} dx;$
14. $\int \frac{7x+11}{(x+1)^2(x-2)} dx;$
15. $\int \frac{3x+1}{(x-1)(x^2+2)} dx;$
16. $\int \frac{3x^2+5x-10}{x^2+2x-8} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 2x \cdot \cos^3 2x dx;$
18. $\int \sin 3x \cdot \cos 2x dx;$
19. $\int ctg^5 \frac{x}{6} dx;$
20. $\int \frac{dx}{5-3\sin x};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7} + \sqrt[6]{x^5}} dx;$
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+1}};$
24. $\int x^2 \sqrt{1-9x^2} dx;$
25. $\int x^{-2/3} \sqrt{1+x^{1/3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{2-8x-x^2}};$
27. $\int \frac{dx}{\sin^2 19x \cdot \cos^2 19x};$
28. $\int \frac{x^2-3x^3-9x^4+1+\sqrt[5]{x^4}}{6x^4} dx;$
29. $\int e^{\sqrt{2x+1}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x-3} dx.$

30-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|--|---|
| 1. $\int \frac{\cos 2x dx}{\sqrt[3]{\sin^4 2x}};$ | 2. $\int \cos(4 - 3x) dx;$ |
| 3. $\int \frac{dx}{\arcsin 3x \cdot \sqrt{1-9x^2}};$ | 4. $\int \frac{dx}{x\sqrt{1-\ln^2 x}};$ |
| 5. $\int 4^{\arcsin x} \cdot \frac{dx}{\sqrt{1-x^2}};$ | 6. $\int tg^2 \frac{x}{5} dx;$ |
| 7. $\int \frac{dx}{\sin^2(7x-5)};$ | 8. $\int \frac{3x-8}{25x^2+1} dx;$ |

Bo'laklab integrallang:

9. $\int (1 - 5x) \sin 6x dx;$ 10. $\int \ln(2x + 1) dx;$
 11. $\int \operatorname{arcctg} 7x dx;$ 12. $\int x^2 \cdot 3^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+1}{x^2+4x+5} dx;$ 14. $\int \frac{6x-10}{(x+1)(x-3)^2} dx;$
 15. $\int \frac{4x-10}{(x+2)(x^2+2)} dx;$ 16. $\int \frac{2x^2-5x+7}{x^2-4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 10x \cdot \cos^2 10x dx;$ 18. $\int \cos x \cdot \cos 5x dx;$
 19. $\int tg^5 \frac{x}{4} dx;$ 20. $\int \frac{dx}{5+4\sin x};$
 21. $\int \sin^2 14x \cdot \cos^2 14x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[6]{x})} dx;$ 23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x+1}};$
 24. $\int x^2 \sqrt{1 - 25x^2} dx;$ 25. $\int \frac{dx}{x^2(1+x^3)^{4/3}};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3)dx}{\sqrt{5-6x-x^2}};$ 27. $\int \frac{dx}{\sin^2 15x \cdot \cos^2 15x};$
 28. $\int \frac{x-4x^2-9x^3+\sqrt[5]{x^7}-1}{5x^3} dx;$ 29. $\int 2^{\sqrt{x}} dx;$
 30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-3} dx.$

31-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\ln(2x+1)}dx}{2x+1}$; 2. $\int \sin(5 - 2x)dx$;

3. $\int \frac{dx}{\arctg 5x \cdot (1+25x^2)}$; 4. $\int \frac{2^{3x} dx}{\sqrt{9+4^{3x}}}$;

5. $\int 8^{\sqrt[3]{x}} \cdot \frac{dx}{\sqrt[3]{x^2}}$; 6. $\int \operatorname{ctg}^2 \frac{x}{3} dx$;

7. $\int \frac{dx}{\cos^2(2+3x)}$; 8. $\int \frac{x+1}{4x^2-9} dx$;

Bo'laklab integrallang:

9. $\int (6x - 2)\cos 3x dx$; 10. $\int \ln(2x - 1) dx$;

11. $\int \arcsin 2x dx$; 12. $\int x^2 \cdot 2^{-\frac{x}{2}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+1}{x^2-2x+17} dx$; 14. $\int \frac{x+8}{(x-1)(x+2)^2} dx$;

15. $\int \frac{5x-7}{(x+3)(x^2+2)} dx$; 16. $\int \frac{3x^2+2x-31}{x^2+x-6} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 11x \cdot \cos^2 11x dx$; 18. $\int \sin 3x \cdot \sin 5x dx$;

19. $\int \operatorname{tg}^5 \frac{x}{7} dx$; 20. $\int \frac{dx}{5-4\sin x}$;

21. $\int \sin^2 9x \cdot \cos^2 9x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(1+\sqrt[6]{x})} dx$; 23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-3}}$;

24. $\int \frac{x^2}{\sqrt{1-25x^2}} dx$; 25. $\int \frac{\sqrt[3]{1+\sqrt[3]{x}} dx}{\sqrt{x}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{3+8x-x^2}}$; 27. $\int \frac{dx}{\sin^2 20x \cdot \cos^2 20x}$;

28. $\int \frac{x^3-3x^2-2x-7+\sqrt[4]{x}}{5x^2} dx$; 29. $\int 2^{-\sqrt{x}} dx$;

30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x+3} dx$.

32-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2 dx}{\sqrt[5]{(3+2x^3)^4}}$;
2. $\int \sin(7x - 4) dx$;
3. $\int \frac{dx}{(x+1) \cdot (2 - \ln(x+1))}$;
4. $\int \frac{dx}{x \sqrt{\lg^2 x - 4}}$;
5. $\int \frac{e^{\arccos 2x} dx}{\sqrt{1-4x^2}}$;
6. $\int \operatorname{tg}^2 7x dx$;
7. $\int \frac{dx}{\cos^2(1-7x)}$;
8. $\int \frac{3x-4}{x^2-4} dx$;

Bo'laklab integrallang:

9. $\int (1-x) \cos 2x dx$;
10. $\int \ln(1-2x) dx$;
11. $\int \arccos 2x dx$;
12. $\int x^2 \cdot 4^{-2x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+2}{x^2+8x+17} dx$;
14. $\int \frac{5x+1}{(x+2)(x-1)^2} dx$;
15. $\int \frac{4x+8}{(x-1)(x^2+3)} dx$;
16. $\int \frac{3x^2+4x-34}{x^2+3x-10} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 4x \cdot \cos^2 4x dx$;
18. $\int \sin 3x \cdot \cos 7x dx$;
19. $\int \operatorname{ctg}^5 \frac{x}{7} dx$;
20. $\int \frac{dx}{4+5\cos x}$;
21. $\int \sin^2 20x \cdot \cos^2 20x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(\sqrt[3]{x}-5)} dx$;
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+3}}$;
24. $\int x^2 \sqrt{1-16x^2} dx$;
25. $\int x^{-1/3} (1+3x^{1/2})^{1/5} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-5)dx}{\sqrt{3+6x-x^2}}$;
27. $\int \frac{dx}{\sin^2 4x \cdot \cos^2 4x}$;
28. $\int \frac{2x^3-x^2+7-3x+\sqrt[3]{x}}{3x^3} dx$;
29. $\int \operatorname{arctg} \sqrt{x} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+1} dx$.

33-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

$$1. \int \sqrt{\frac{\arcsin x}{1-x^2}} dx;$$

$$2. \int \cos(6-5x) dx;$$

$$3. \int \frac{dx}{\cos^2 2x \cdot (1+3 \operatorname{tg} 2x)};$$

$$4. \int \frac{x^2 dx}{1+x^2};$$

$$5. \int 9^{\frac{2}{x}} \cdot \frac{dx}{x^2};$$

$$6. \int \operatorname{tg}^2 \frac{x}{4} dx;$$

$$7. \int \frac{dx}{\cos^2(2x-1)};$$

$$8. \int \frac{5x+3}{4-x^2} dx;$$

Bo'laklab integrallang:

$$9. \int (2x+5) \sin 3x dx; \quad 10. \int \ln(2-3x) dx;$$

$$11. \int \arccos 3x dx; \quad 12. \int x^2 \cdot 3^{-2x} dx.$$

Kasr-ratsional funksiya integralini hisoblang:

$$13. \int \frac{3x+1}{x^2+2x+3} dx;$$

$$14. \int \frac{3x-8}{(x-3)(x-2)^2} dx;$$

$$15. \int \frac{9x+4}{(x+2)(x^2+3)} dx; \quad 16. \int \frac{2x^2+7x-25}{x^2+x-12} dx.$$

Trigonometrik funksiya integralini hisoblang:

$$17. \int \sin^2 9x \cdot \cos^3 9x dx;$$

$$18. \int \sin 4x \cdot \cos 2x dx;$$

$$19. \int \operatorname{ctg}^5 \frac{x}{4} dx; \quad 20. \int \frac{dx}{3 \sin x + 5};$$

$$21. \int \sin^2 16x \cdot \cos^2 16x dx.$$

Irratsional funksiyaning integralini hisoblang:

$$22. \int \frac{1}{\sqrt[3]{x(3+\sqrt{x})}} dx;$$

$$23. \int \frac{(x-1)dx}{x \cdot \sqrt{x+3}};$$

$$24. \int \frac{x^2}{\sqrt{1-16x^2}} dx; \quad 25. \int x^{1/2} \left(1-x^{1/3}\right)^{1/4} dx;$$

Turli usullarni qo'llab integralni hisoblang:

$$26. \int \frac{(x+2)dx}{\sqrt{6+4x-x^2}}; \quad 27. \int \frac{dx}{\sin^2 5x \cdot \cos^2 5x};$$

$$28. \int \frac{7x^4 - x^6 - 3x - 6 + \sqrt[4]{x^3}}{2x^5} dx; \quad 29. \int \operatorname{arcctg} \sqrt{x} dx;$$

$$30. \int \frac{e^x \cdot \sqrt{e^x - 1}}{e^x + 2} dx.$$

34-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|---|--|
| 1. $\int \frac{\sqrt{\arctg 3x}}{1+9x^2} dx;$ | 2. $\int \sin(5 + 2x) dx;$ |
| 3. $\int \frac{5^{3x} dx}{1-5^{3x}};$ | 4. $\int \frac{x^3 dx}{\sqrt{1+x^8}};$ |
| 5. $\int \frac{e^{\arctg 5x} dx}{1+25x^2};$ | 6. $\int \operatorname{ctg}^2 2x dx;$ |
| 7. $\int \frac{dx}{\sin^2(1-2x)};$ | 8. $\int \frac{2x+1}{x^2-9} dx;$ |

Bo'laklab integrallang:

9. $\int (4x + 1) \sin 2x dx;$ 10. $\int \ln(2x - 3) dx;$
 11. $\int \arcsin 3x dx;$ 12. $\int x^2 \cdot e^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

- | | |
|--|--|
| 13. $\int \frac{5x-2}{x^2-4x+5} dx;$ | 14. $\int \frac{x-13}{(x+3)(x-1)^2} dx;$ |
| 15. $\int \frac{5x+18}{(x-4)(x^2+3)} dx;$ 16. $\int \frac{2x^2+13x-5}{x^2+3x-4} dx.$ | |

Trigonometrik funksiya integralini hisoblang:

- | | |
|---|-------------------------------------|
| 17. $\int \sin^3 6x \cdot \cos^2 6x dx;$ | 18. $\int \sin x \cdot \sin 3x dx;$ |
| 19. $\int \operatorname{tg}^5 \frac{x}{5} dx;$ 20. $\int \frac{dx}{4+5\sin x};$ | |
| 21. $\int \sin^2 11x \cdot \cos^2 11x dx.$ | |

Irratsional funksiyaning integralini hisoblang:

- | | |
|---|--|
| 22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}+x)} dx;$ | 23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-1}};$ |
| 24. $\int x^2 \sqrt{36 - x^2} dx;$ 25. $\int \frac{\sqrt[3]{1+\sqrt[4]{x}}}{\sqrt[5]{x}} dx;$ | |

Turli usullarni qo'llab integralni hisoblang:

- | | |
|--|--|
| 26. $\int \frac{(2x-1)dx}{\sqrt{1-4x-x^2}};$ | 27. $\int \frac{dx}{\sin^2 11x \cdot \cos^2 11x};$ |
| 28. $\int \frac{x^8-5x^7+6-3x^6+\sqrt[4]{x^{10}}}{2x^7} dx;$ 29. $\int 3^{\sqrt{x}} dx;$ | |
| 30. $\int \frac{e^{x \cdot \sqrt{e^x+1}}}{e^x+2} dx.$ | |

35-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{(\arccos x)^2 \sqrt{1-x^2}}$;
2. $\int \cos(2-7x) dx$;
3. $\int \frac{dx}{\arctg 2x \cdot (1+4x^2)}$;
4. $\int \frac{x^2 dx}{\sqrt{1+x^6}}$;
5. $\int \frac{2^{\arctg 2x} dx}{1+4x^2}$;
6. $\int \operatorname{ctg}^2 3x dx$;
7. $\int \frac{dx}{\sin^2(3x+5)}$;
8. $\int \frac{7x+2}{9-x^2} dx$;

Bo'laklab integrallang:

9. $\int (3x+1) \cos 2x dx$;
10. $\int \ln(2+3x) dx$;
11. $\int \arctg 2x dx$;
12. $\int x^2 \cdot 2^{-2x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+3}{x^2-10x+29} dx$;
14. $\int \frac{x+4}{(x+3)(x+2)^2} dx$;
15. $\int \frac{7x-26}{(x+4)(x^2+2)} dx$;
16. $\int \frac{3x^2-7x-38}{x^2-2x-8} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 7x \cdot \cos^3 7x dx$;
18. $\int \cos 2x \cdot \cos 5x dx$;
19. $\int \operatorname{tg}^5 \frac{x}{8} dx$;
20. $\int \frac{dx}{4-5\sin x}$;
21. $\int \sin^2 18x \cdot \cos^2 18x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x-\sqrt[4]{x^3}} dx$;
23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x-2}}$;
24. $\int x^2 \sqrt{1-x^2} dx$;
25. $\int x^{-2/3} (1+x^{1/2})^{1/2} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{1-2x-x^2}}$;
27. $\int \frac{dx}{\sin^2 7x \cdot \cos^2 7x}$;
28. $\int \frac{x^3-5x^5-3x-4+\sqrt[3]{x^5}}{2x^4} dx$;
29. $\int 3^{-\sqrt{x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-1} dx$.

36-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|---|--------------------------------------|
| 1. $\int (\cos x + 2)^{21} \cdot \sin x dx;$ | 2. $\int \sin(5 + 6x) dx;$ |
| 3. $\int \frac{dx}{\sin^2 5x \cdot (7 + \operatorname{ctg} 5x)};$ | 4. $\int \frac{e^x dx}{1 + e^{2x}};$ |
| 5. $\int e^{\operatorname{tg} 2x} \frac{dx}{\cos^2 2x};$ | 6. $\int \operatorname{tg}^2 3x dx;$ |
| 7. $\int \frac{dx}{\cos^2(5x+3)};$ | 8. $\int \frac{3x-1}{16-x^2} dx;$ |

Bo'laklab integrallang:

9. $\int (4 - 2x) \sin 3x dx;$ 10. $\int \ln(4 - 5x) dx;$
 11. $\int \operatorname{arcctg} 2x dx;$ 12. $\int x^2 \cdot 4^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

- | | |
|---|--|
| 13. $\int \frac{3x+4}{x^2-10x+29} dx;$ | 14. $\int \frac{3x-7}{(x-2)(x-3)^2} dx;$ |
| 15. $\int \frac{5x+13}{(x-1)(x^2+5)} dx;$ 16. $\int \frac{2x^2-7x-3}{x^2-6x+5} dx.$ | |

Trigonometrik funksiya integralini hisoblang:

- | | |
|---|--|
| 17. $\int \sin^2 4x \cdot \cos^3 4x dx;$ | 18. $\int \sin 10x \cdot \cos 15x dx;$ |
| 19. $\int \operatorname{ctg}^5 3x dx;$ 20. $\int \frac{dx}{3-5\sin x};$ | |
| 21. $\int \sin^2 19x \cdot \cos^2 19x dx.$ | |

Irratsional funksiyaning integralini hisoblang:

- | | |
|--|---|
| 22. $\int \frac{1}{\sqrt{x-3}\sqrt{x}} dx;$ | 23. $\int \frac{(x+1)dx}{x\sqrt{x-2}};$ |
| 24. $\int x^2 \sqrt{4-x^2} dx;$ 25. $\int \frac{\sqrt[3]{x^2-4} dx}{x^2};$ | |

Turli usullarni qo'llab integralni hisoblang:

- | | |
|---|--|
| 26. $\int \frac{(x-2)dx}{\sqrt{5-4x-x^2}};$ | 27. $\int \frac{dx}{\sin^2 3x \cdot \cos^2 3x};$ |
| 28. $\int \frac{x^6-7x^5+4-4x^9+2\sqrt[4]{x^3}}{3x^6} dx;$ 29. $\int \sin \sqrt{x} dx;$ | |
| 30. $\int \frac{e^x \cdot \sqrt{e^x+3}}{e^x-2} dx.$ | |

37-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{3x}}{\sqrt[4]{11+e^{3x}}} dx;$
2. $\int \sin(8 - 3x) dx;$
3. $\int \frac{dx}{\arcsin x \cdot \sqrt{1-x^2}};$
4. $\int \frac{3x^3 dx}{x^8+4};$
5. $\int e^{x^5} \cdot x^4 dx;$
6. $\int tg^2 2x dx;$
7. $\int \frac{dx}{\cos^2(2-5x)};$
8. $\int \frac{2x-5}{x^2+16} dx;$

Bo'laklab integrallang:

9. $\int (2-x) \sin 5x dx;$
10. $\int \ln(5+3x) dx;$
11. $\int \operatorname{arcctg} 3x dx;$
12. $\int x^2 \cdot 5^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-1}{x^2+6x+10} dx;$
14. $\int \frac{3x+7}{(x+2)(x+3)^2} dx;$
15. $\int \frac{5x+8}{(x-2)(x^2+5)} dx;$
16. $\int \frac{3x^2+x-38}{x^2-x-12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 15x \cdot \cos^2 15x dx;$
18. $\int \sin 5x \cdot \cos 8x dx;$
19. $\int tg^5 3x dx;$
20. $\int \frac{dx}{3-5\cos x};$
21. $\int \sin^2 12x \cdot \cos^2 12x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x} dx}{\sqrt[3]{x^2-\sqrt{x}}};$
23. $\int \frac{(x-1) dx}{x \cdot \sqrt{x+2}};$
24. $\int \frac{x^2}{\sqrt{16-x^2}} dx;$
25. $\int \frac{\sqrt{x^2-4} dx}{\sqrt[3]{x}};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3) dx}{\sqrt{5+2x-x^2}};$
27. $\int \frac{dx}{\sin^2 2x \cdot \cos^2 2x};$
28. $\int \frac{x^2-2x^4-7x^3-3+\sqrt[4]{x^3}}{5x^3} dx;$
29. $\int \cos \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^{x+2}} dx.$

38-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{x \cdot \sqrt[3]{5-\ln x}} dx;$
2. $\int \sin(2x + 3) dx;$
3. $\int \frac{dx}{x(1-\ln x)};$
4. $\int \frac{dx}{x \cdot \sqrt{1+\ln^2 x}};$
5. $\int e^{\frac{1}{x}} \cdot \frac{dx}{x^2};$
6. $\int t g^2 \frac{x}{2} dx;$
7. $\int \frac{dx}{\sin^2(4x-3)};$
8. $\int \frac{4x+3}{x^2+16} dx;$

Bo'laklab integrallang:

9. $\int (3x - 4) \cos 5x dx;$
10. $\int \ln(3 - 5x) dx;$
11. $\int \arctg 3x dx;$
12. $\int x^2 \cdot 3^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+5}{x^2+4x+8} dx;$
14. $\int \frac{3x-4}{(x-1)(x-2)^2} dx;$
15. $\int \frac{3x+21}{(x+2)(x^2+5)} dx;$
16. $\int \frac{3x^2+15x+8}{x^2+4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 8x \cdot \cos^2 8x dx ;$
18. $\int \cos 3x \cdot \cos 7x dx;$
19. $\int ctg^5 \frac{x}{6} dx;$
20. $\int \frac{dx}{5-4\cos x};$
21. $\int \sin^2 5x \cdot \cos^2 5x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7}-\sqrt[6]{x^5}} dx;$
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+3}};$
24. $\int x^2 \sqrt{16-x^2} dx;$
25. $\int x^{-1/4} \sqrt{1-x^{2/3}} dx ;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+1)dx}{\sqrt{1-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 6x \cdot \cos^2 6x};$
28. $\int \frac{x^3-3x^4-5x^6+3+2\sqrt[4]{x^3}}{9x^5} dx;$
29. $\int \frac{\arcsin x}{\sqrt{1+x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+1} dx.$

39-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^5 dx}{\sqrt{1+x^6}}$;
2. $\int \cos(2-5x) dx$;
3. $\int \frac{dx}{\cos^2 x(3+2tgx)}$;
4. $\int \frac{xdx}{\sqrt{3-x^4}}$;
5. $\int 3ctgx \cdot \frac{dx}{\sin^2 x}$;
6. $\int ctg^2 6x dx$;
7. $\int \frac{dx}{\cos^2(5x-1)}$;
8. $\int \frac{7-2x}{81-x^2} dx$;

Bo'laklab integrallang:

9. $\int (3+2x)\sin 4x dx$;
10. $\int \ln(2x-5) dx$;
11. $\int \operatorname{arcctg} 7x dx$;
12. $\int x^2 \cdot 2^{-\frac{x}{2}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+2}{x^2+8x+17} dx$;
14. $\int \frac{3x-8}{(x-3)(x-2)^2} dx$;
15. $\int \frac{5x+18}{(x-4)(x^2+3)} dx$;
16. $\int \frac{3x^2-7x-38}{x^2-2x-8} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 4x \cdot \cos^3 4x dx$;
18. $\int \sin 5x \cdot \cos 8x dx$;
19. $\int ctg^5 \frac{x}{6} dx$;
20. $\int \frac{dx}{2-3\sin x}$;
21. $\int \sin^2 4x \cdot \cos^2 4x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}+\sqrt[3]{x}} dx$;
23. $\int \frac{(x+1)dx}{x\sqrt{x+2}}$;
24. $\int x^2\sqrt{25-x^2} dx$;
25. $\int x^{3/2}\sqrt{1+x^{3/5}} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x+1)dx}{\sqrt{1-8x-x^2}}$;
27. $\int \frac{dx}{\sin^2 13x \cdot \cos^2 13x}$;
28. $\int \frac{x^7-5x^5-4x^3-2+\sqrt[3]{x^8}}{2x^6} dx$;
29. $\int e^{\sqrt{2x+1}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-3} dx$.

40-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{\sqrt[4]{7x-5}}$;
2. $\int \cos(1-3x)dx$;
3. $\int \frac{dx}{\sin^2 3x \cdot (2+\operatorname{ctg} 3x)}$;
4. $\int \frac{e^x dx}{\sqrt{1-e^{2x}}}$;
5. $\int \frac{4^{\operatorname{arccctg} 3x} \cdot dx}{1+9x^2}$;
6. $\int \operatorname{tg}^2 4x dx$;
7. $\int \frac{dx}{\cos^2(7x+2)}$;
8. $\int \frac{12x+5}{81+x^2} dx$;

Bo'laklab integrallang:

9. $\int (5-2x)\cos 4x dx$;
10. $\int \ln(2x+1) dx$;
11. $\int \arcsin 2x dx$;
12. $\int x^2 \cdot 4^{-2x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+3} dx$;
14. $\int \frac{x-13}{(x+3)(x-1)^2} dx$;
15. $\int \frac{7x-26}{(x+4)(x^2+2)} dx$;
16. $\int \frac{2x^2-7x-3}{x^2-6x+5} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 15x \cdot \cos^2 15x dx$;
18. $\int \cos 3x \cdot \cos 7x dx$;
19. $\int \operatorname{ctg}^5 2x dx$;
20. $\int \frac{dx}{5+3\cos x}$;
21. $\int \sin^2 3x \cdot \cos^2 3x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[4]{x^3+x}} dx$;
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x+3}}$;
24. $\int \frac{x^2}{\sqrt{25-x^2}} dx$;
25. $\int x^3 \cdot \sqrt[4]{1+x^4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-6)dx}{\sqrt{1+8x-x^2}}$;
27. $\int \frac{dx}{\sin^2 21x \cdot \cos^2 21x}$;
28. $\int \frac{x^2-3x^3-9x^4+1+\sqrt[5]{x^4}}{6x^4} dx$;
29. $\int 2^{\sqrt{x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x+3} dx$.

41-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

$$1. \int \frac{\cos x dx}{\sqrt[5]{\sin^2 x}}; \quad 2. \int \sin(2 - 4x) dx;$$

$$3. \int \frac{dx}{\arcsin 2x \cdot \sqrt{1-4x^2}}; \quad 4. \int \frac{dx}{x(1+\ln^2 x)};$$

$$5. \int \frac{5^{\ln 2x} \cdot dx}{x}; \quad 6. \int \operatorname{tg}^2 6x dx;$$

$$7. \int \frac{dx}{\sin^2(3-4x)}; \quad 8. \int \frac{2x+7}{25x^2-1} dx;$$

Bo'laklab integrallang:

$$9. \int (1 - 5x) \sin 6x dx; \quad 10. \int \ln(2x - 1) dx;$$

$$11. \int \arccos 2x dx; \quad 12. \int x^2 \cdot 3^{-2x} dx.$$

Kasr-ratsional funksiya integralini hisoblang:

$$13. \int \frac{5x-2}{x^2-4x+5} dx; \quad 14. \int \frac{x+4}{(x+3)(x+2)^2} dx;$$

$$15. \int \frac{5x+13}{(x-1)(x^2+5)} dx; \quad 16. \int \frac{3x^2+x-38}{x^2-x-12} dx.$$

Trigonometrik funksiya integralini hisoblang:

$$17. \int \sin^3 8x \cdot \cos^2 8x dx; \quad 18. \int \sin 2x \cdot \sin 4x dx;$$

$$19. \int \operatorname{tg}^5 \frac{x}{2} dx; \quad 20. \int \frac{dx}{2-3\cos x};$$

$$21. \int \sin^2 6x \cdot \cos^2 6x dx.$$

Irratsional funksiyaning integralini hisoblang:

$$22. \int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}-x)} dx; \quad 23. \int \frac{(x-1)dx}{x \cdot \sqrt{x-3}};$$

$$24. \int x^2 \sqrt{1-4x^2} dx; \quad 25. \int x^{1/3} \left(2 + x^{2/5}\right)^{1/4} dx;$$

Turli usullarni qo'llab integralni hisoblang:

$$26. \int \frac{(x+5)dx}{\sqrt{2+6x-x^2}}; \quad 27. \int \frac{dx}{\sin^2 19x \cdot \cos^2 19x};$$

$$28. \int \frac{x-4x^2-9x^3+\sqrt[5]{x^7}-1}{5x^3} dx; \quad 29. \int 2^{-\sqrt{x}} dx;$$

$$30. \int \frac{e^{x \cdot \sqrt{e^x-1}}}{e^x+1} dx.$$

42-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (3 - 2x)^{64} dx;$
2. $\int \cos(2x - 7) dx;$
3. $\int \frac{e^{5x} dx}{e^{5x} - 8};$
4. $\int \frac{x^2 dx}{\sqrt{1-x^6}};$
5. $\int 3^{\sqrt{x-1}} \cdot \frac{dx}{\sqrt{x-1}};$
6. $\int \operatorname{ctg}^2 7x dx;$
7. $\int \frac{dx}{\cos^2(3-5x)};$
8. $\int \frac{3x-8}{25x^2+1} dx;$

Bo'laklab integrallang:

9. $\int (6x - 2)\cos 3x dx;$
10. $\int \ln(1 - 2x) dx;$
11. $\int \arccos 3x dx;$
12. $\int x^2 \cdot e^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+3}{x^2-10x+29} dx;$
14. $\int \frac{3x-7}{(x-2)(x-3)^2} dx;$
15. $\int \frac{5x+8}{(x-2)(x^2+5)} dx;$
16. $\int \frac{3x^2+15x+8}{x^2+4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 10x \cdot \cos^3 10x dx;$
18. $\int \sin 2x \cdot \cos 4x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{3} dx;$
20. $\int \frac{dx}{4\sin x + 5};$
21. $\int \sin^2 10x \cdot \cos^2 10x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[3]{x^2+x}} dx;$
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x-3}};$
24. $\int \frac{x^2}{\sqrt{1-4x^2}} dx;$
25. $\int x^4 \cdot \sqrt[3]{(1+x^3)^2} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{2-8x-x^2}};$
27. $\int \frac{dx}{\sin^2 15x \cdot \cos^2 15x};$
28. $\int \frac{x^3-3x^2-2x-7+\sqrt[4]{x}}{5x^2} dx;$
29. $\int \operatorname{arctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+2} dx.$

43-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int x \cdot \sqrt[3]{x^2 + 1} dx;$
2. $\int \cos(1 + 4x) dx;$
3. $\int \frac{dx}{\arctg x \cdot (1+x^2)};$
4. $\int \frac{e^{3x} dx}{1+e^{6x}};$
5. $\int 7^{\sqrt{x+1}} \cdot \frac{dx}{\sqrt{x+1}};$
6. $\int \operatorname{ctg}^2 5x dx;$
7. $\int \frac{dx}{\sin^2(7x-5)};$
8. $\int \frac{x+1}{4x^2-9} dx;$

Bo'laklab integrallang:

9. $\int (1-x)\cos 2x dx;$
10. $\int \ln(2-3x) dx;$
11. $\int \arcsin 3x dx;$
12. $\int x^2 \cdot 2^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+4}{x^2-10x+29} dx;$
14. $\int \frac{3x+7}{(x+2)(x+3)^2} dx;$
15. $\int \frac{3x+21}{(x+2)(x^2+5)} dx;$
16. $\int \frac{2x^2+x-37}{x^2-x+20} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 5x \cdot \cos^2 5x dx;$
18. $\int \sin 3x \cdot \cos 10x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{3} dx;$
20. $\int \frac{dx}{3+5\cos x};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(4+\sqrt[3]{x})} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{1-9x^2}} dx;$
25. $\int x^{-2/3} \sqrt{1+x^{1/3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3)dx}{\sqrt{5-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 20x \cdot \cos^2 20x};$
28. $\int \frac{2x^3-x^2+7-3x+\sqrt[3]{x}}{3x^3} dx;$
29. $\int \operatorname{arcctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x+2} dx.$

44-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt[4]{1+\ln x}}{x} dx;$
2. $\int \sin(2 + 3x) dx;$
3. $\int \frac{2^{9x} dx}{9-2^{9x}};$
4. $\int \frac{e^x dx}{\sqrt{9+e^{2x}}};$
5. $\int 7^{1+\lg x} \cdot \frac{dx}{x};$
6. $\int tg^2 \frac{x}{5} dx;$
7. $\int \frac{dx}{\cos^2(2+3x)};$
8. $\int \frac{3x-4}{x^2-4} dx;$

Bo'laklab integrallang:

9. $\int (2x + 5) \sin 3x dx;$
10. $\int \ln(2x - 3) dx;$
11. $\int \arctg 2x dx;$
12. $\int x^2 \cdot 4^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-1}{x^2+6x+10} dx;$
14. $\int \frac{3x-4}{(x-1)(x-2)^2} dx;$
15. $\int \frac{5x+14}{(x-2)(x^2+4)} dx;$
16. $\int \frac{3x^2-x-46}{x^2-2x-15} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 8x \cdot \cos^3 8x dx ;$
18. $\int \cos x \cdot \cos 3x dx;$
19. $\int ctg^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{2+3\cos x};$
21. $\int \sin^2 13x \cdot \cos^2 13x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x}}{\sqrt{x} + \sqrt[3]{x^2}} dx ;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-5}} ;$
24. $\int x^2 \sqrt{1-9x^2} dx;$
25. $\int \frac{dx}{x^2(1+x^3)^{4/3}} ;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{3+8x-x^2}};$
27. $\int \frac{dx}{\sin^2 4x \cdot \cos^2 4x};$
28. $\int \frac{7x^4-x^6-3x-6+\sqrt[4]{x^3}}{2x^5} dx;$
29. $\int 3^{\sqrt{x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-1} dx.$

45-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{2x}}{\sqrt{9+e^{2x}}} dx;$
2. $\int \cos(3-4x) dx;$
3. $\int \frac{dx}{x \cdot (5-\ln x)};$
4. $\int \frac{dx}{x(1+\lg^2 x)};$
5. $\int 4^{\arcsin x} \cdot \frac{dx}{\sqrt{1-x^2}};$
6. $\int \operatorname{ctg}^2 \frac{x}{3} dx;$
7. $\int \frac{dx}{\cos^2(1-7x)};$
8. $\int \frac{5x+3}{4-x^2} dx;$

Bo'laklab integrallang:

9. $\int (4x+1)\sin 2x dx;$
10. $\int \ln(2+3x) dx;$
11. $\int \operatorname{arcctg} 2x dx;$
12. $\int x^2 \cdot 5^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+5}{x^2+4x+8} dx;$
14. $\int \frac{6x+10}{(x-1)(x+3)^2} dx;$
15. $\int \frac{3x-15}{(x+3)(x^2+3)} dx;$
16. $\int \frac{2x^2-12x+19}{x^2-7x+10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 3x \cdot \cos^3 3x dx;$
18. $\int \sin x \cdot \sin 5x dx;$
19. $\int \operatorname{ctg}^5 4x dx;$
20. $\int \frac{dx}{5-3\cos x};$
21. $\int \sin^2 7x \cdot \cos^2 7x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x-\sqrt[3]{x^2}} dx;$
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+1}};$
24. $\int x^2 \sqrt{1-25x^2} dx;$
25. $\int \frac{\sqrt[3]{1+\sqrt[3]{x}} dx}{\sqrt{x}};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-5)dx}{\sqrt{3+6x-x^2}};$
27. $\int \frac{dx}{\sin^2 5x \cdot \cos^2 5x};$
28. $\int \frac{x^8-5x^7+6-3x^6+\sqrt[4]{x^{10}}}{2x^7} dx;$
29. $\int 3^{-\sqrt{x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+3}}{e^x-2} dx.$

46-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\operatorname{tg} 2x}{\cos^2 2x} dx;$
2. $\int \sin(4x + 5) dx;$
3. $\int \frac{dx}{\cos^2 x \cdot (1+3\operatorname{tg} x)};$
4. $\int \frac{dx}{x\sqrt{1-\ln^2 x}};$
5. $\int 8^{\sqrt[3]{x}} \cdot \frac{dx}{\sqrt[3]{x^2}};$
6. $\int \operatorname{tg}^2 7x dx;$
7. $\int \frac{dx}{\cos^2(2x-1)};$
8. $\int \frac{2x+1}{x^2-9} dx;$

Bo'laklab integrallang:

9. $\int (3x + 1)\cos 2x dx;$
10. $\int \ln(4 - 5x) dx;$
11. $\int \operatorname{arcctg} 3x dx;$
12. $\int x^2 \cdot 3^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-5}{x^2-8x+20} dx;$
14. $\int \frac{2x-14}{(x+1)(x-3)^2} dx;$
15. $\int \frac{8x+4}{(x-3)(x^2+5)} dx;$
16. $\int \frac{3x^2+20x+34}{x^2+7x+12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 3x \cdot \cos^2 3x dx;$
18. $\int \sin 4x \cdot \sin 6x dx;$
19. $\int \operatorname{ctg}^5 5x dx;$
20. $\int \frac{dx}{3+5\sin x};$
21. $\int \sin^2 15x \cdot \cos^2 15x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7} + \sqrt[6]{x^5}} dx;$
23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x+1}};$
24. $\int \frac{x^2}{\sqrt{1-25x^2}} dx;$
25. $\int x^{-1/3} \left(1 + 3x^{1/2}\right)^{1/5} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+2)dx}{\sqrt{6+4x-x^2}};$
27. $\int \frac{dx}{\sin^2 11x \cdot \cos^2 11x};$
28. $\int \frac{x^3-5x^5-3x-4+\sqrt[3]{x^5}}{2x^4} dx;$
29. $\int \sin \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+2} dx.$

47-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2}{\sqrt[5]{x^3+4}} dx;$
2. $\int \cos(5x - 1) dx;$
3. $\int \frac{dx}{\arcsin 3x \cdot \sqrt{1-9x^2}};$
4. $\int \frac{2^{3x} dx}{\sqrt{9+4^{3x}}};$
5. $\int \frac{e^{\arccos 2x} dx}{\sqrt{1-4x^2}};$
6. $\int tg^2 \frac{x}{4} dx;$
7. $\int \frac{dx}{\sin^2(1-2x)};$
8. $\int \frac{7x+2}{9-x^2} dx;$

Bo'laklab integrallang:

9. $\int (4 - 2x) \sin 3x dx;$
10. $\int \ln(5 + 3x) dx;$
11. $\int \arctg 3x dx;$
12. $\int x^2 \cdot 2^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-1}{x^2-10x+26} dx;$
14. $\int \frac{7x+11}{(x-2)(x+3)^2} dx;$
15. $\int \frac{5x-11}{(x-3)(x^2+4)} dx;$
16. $\int \frac{2x^2-11x+3}{x^2-5x+4} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 2x \cdot \cos^2 2x dx;$
18. $\int \cos 2x \cdot \cos 3x dx;$
19. $\int tg^5 5x dx;$
20. $\int \frac{dx}{3\sin x + 2};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[6]{x})} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-3}};$
24. $\int x^2 \sqrt{1-16x^2} dx;$
25. $\int x^{1/2} (1-x^{1/3})^{1/4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-1)dx}{\sqrt{1-4x-x^2}};$
27. $\int \frac{dx}{\sin^2 7x \cdot \cos^2 7x};$
28. $\int \frac{x^6-7x^5+4-4x^9+2\sqrt[4]{x^3}}{3x^6} dx;$
29. $\int \cos \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+1} dx.$

48-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{\sin^2 x \cdot \sqrt[3]{\operatorname{ctg} x + 1}} dx;$
2. $\int \cos(4 - 3x) dx;$
3. $\int \frac{dx}{\arctg 5x \cdot (1 + 25x^2)};$
4. $\int \frac{dx}{x \sqrt{\lg^2 x - 4}};$
5. $\int 9^{\frac{2}{x}} \cdot \frac{dx}{x^2};$
6. $\int \operatorname{ctg}^2 2x dx;$
7. $\int \frac{dx}{\sin^2(3x+5)};$
8. $\int \frac{3x-1}{16-x^2} dx;$

Bo'laklab integrallang:

9. $\int (2 - x) \sin 5x dx;$
10. $\int \ln(3 - 5x) dx;$
11. $\int \arccos 5x dx;$
12. $\int x^2 \cdot 4^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+3}{x^2-8x+17} dx;$
14. $\int \frac{7x-4}{(x+3)(x-2)^2} dx;$
15. $\int \frac{16x-1}{(x-5)(x^2+2)} dx;$
16. $\int \frac{2x^2-x-13}{x^2-x-2} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 5x \cdot \cos^3 5x dx;$
18. $\int \sin 5x \cdot \sin 9x dx;$
19. $\int \operatorname{tg}^5 4x dx;$
20. $\int \frac{dx}{5-3\sin x};$
21. $\int \sin^2 14x \cdot \cos^2 14x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(1+\sqrt[6]{x})} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+3}};$
24. $\int \frac{x^2}{\sqrt{1-16x^2}} dx;$
25. $\int \frac{\sqrt[3]{1+\sqrt[4]{x}}}{\sqrt[5]{x}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{1-2x-x^2}};$
27. $\int \frac{dx}{\sin^2 3x \cdot \cos^2 3x};$
28. $\int \frac{x^2-2x^4-7x^3-3+\sqrt[4]{x^3}}{5x^3} dx;$
29. $\int \frac{\arcsin x}{\sqrt{1+x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-3} dx.$

49-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos 2x dx}{\sqrt[3]{\sin^4 2x}}$;
2. $\int \sin(5 - 2x) dx$;
3. $\int \frac{dx}{(x+1) \cdot (2 - \ln(x+1))}$;
4. $\int \frac{x^2 dx}{1+x^2}$;
5. $\int \frac{e^{\operatorname{arctg} 5x} dx}{1+25x^2}$;
6. $\int \operatorname{ctg}^2 3x dx$;
7. $\int \frac{dx}{\cos^2(5x+3)}$;
8. $\int \frac{2x-5}{x^2+16} dx$;

Bo'laklab integrallang:

9. $\int (3x - 4) \cos 5x dx$; 10. $\int \ln(2x + 5) dx$;
11. $\int \operatorname{arcsin} 5x dx$; 12. $\int x^2 \cdot 5^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-4}{x^2+6x+13} dx$;
14. $\int \frac{3x+4}{(x+1)(x+2)^2} dx$;
15. $\int \frac{3x-10}{(x+2)(x^2+4)} dx$;
16. $\int \frac{3x^2-13x-4}{x^2-4x-5} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 7x \cdot \cos^2 7x dx$;
18. $\int \cos x \cdot \sin 7x dx$;
19. $\int \operatorname{ctg}^5 \frac{x}{6} dx$;
20. $\int \frac{dx}{5+4\sin x}$;
21. $\int \sin^2 9x \cdot \cos^2 9x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(\sqrt[3]{x}-5)} dx$;
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x+3}}$;
24. $\int x^2 \sqrt{36 - x^2} dx$;
25. $\int x^{-2/3} (1 + x^{1/2})^{1/2} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{5-4x-x^2}}$;
27. $\int \frac{dx}{\sin^2 2x \cdot \cos^2 2x}$;
28. $\int \frac{x^3-3x^4-5x^6+3+2\sqrt[4]{x^3}}{9x^5} dx$;
29. $\int \frac{\operatorname{arccos} x}{\sqrt{1+x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x-3} dx$.

50-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\ln(2x+1)}dx}{2x+1}$;
2. $\int \sin(7x - 4)dx$;
3. $\int \frac{dx}{\cos^2 2x \cdot (1+3tg2x)}$;
4. $\int \frac{x^3 dx}{\sqrt{1+x^8}}$;
5. $\int \frac{2^{arctg2x} dx}{1+4x^2}$;
6. $\int tg^2 3x dx$;
7. $\int \frac{dx}{\cos^2(2-5x)}$;
8. $\int \frac{4x+3}{x^2+16} dx$;

Bo'laklab integrallang:

9. $\int (2x - 3)\cos 3x dx$; 10. $\int \ln(3 - 2x) dx$;
11. $\int \arcsin 4x dx$; 12. $\int x^2 \cdot 3^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-3}{x^2-4x+8} dx$;
14. $\int \frac{3x+2}{(x+2)(x+1)^2} dx$;
15. $\int \frac{11x-4}{(x-4)(x^2+4)} dx$; 16. $\int \frac{3x^2-2x-31}{x^2-x-6} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 9x \cdot \cos^2 9x dx$;
18. $\int \sin 3x \cdot \cos 2x dx$;
19. $\int tg^5 \frac{x}{4} dx$; 20. $\int \frac{dx}{5-4\sin x}$;
21. $\int \sin^2 20x \cdot \cos^2 20x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(3+\sqrt{x})} dx$;
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-1}}$;
24. $\int x^2 \sqrt{1-x^2} dx$; 25. $\int \frac{\sqrt[3]{x^2-4} dx}{x^2}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{5+2x-x^2}}$; 27. $\int \frac{dx}{\sin^2 6x \cdot \cos^2 6x}$;
28. $\int \frac{x^3-4x-7x^2-2+\sqrt[3]{x^5}}{3x^2} dx$; 29. $\int \sin \sqrt{x-1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+3} dx$.

51-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2 dx}{\sqrt[5]{(3+2x^3)^4}}$;
2. $\int \cos(6 - 5x) dx$;
3. $\int \frac{5^{3x} dx}{1-5^{3x}}$;
4. $\int \frac{x^2 dx}{\sqrt{1+x^6}}$;
5. $\int e^{tg 2x} \frac{dx}{\cos^2 2x}$;
6. $\int tg^2 2x dx$;
7. $\int \frac{dx}{\sin^2(4x-3)}$;
8. $\int \frac{5x-1}{x^2+9} dx$;

Bo'laklab integrallang:

9. $\int (3 + 5x) \sin 2x dx$; 10. $\int \ln(2 + 5x) dx$;
11. $\int \arccos 4x dx$; 12. $\int x^2 \cdot 2^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-5}{x^2+10x+26} dx$;
14. $\int \frac{x-8}{x(x-2)^2} dx$;
15. $\int \frac{3x-7}{(x+1)(x^2+4)} dx$;
16. $\int \frac{2x^2+12x+19}{x^2+7x+10} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 2x \cdot \cos^3 2x dx$;
18. $\int \cos x \cdot \cos 5x dx$;
19. $\int tg^5 \frac{x}{7} dx$;
20. $\int \frac{dx}{4+5\cos x}$;
21. $\int \sin^2 16x \cdot \cos^2 16x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x+x})} dx$;
23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x-2}}$;
24. $\int x^2 \sqrt{4 - x^2} dx$;
25. $\int \frac{\sqrt{x^2-4} dx}{\sqrt[3]{x}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+1)dx}{\sqrt{1-6x-x^2}}$;
27. $\int \frac{dx}{\sin^2 8x \cdot \cos^2 8x}$;
28. $\int \frac{x^5-3x^4+2-5x^3+\sqrt[3]{x^2}}{8x^4} dx$;
29. $\int \operatorname{arcctg} \sqrt{x+1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-1} dx$.

52-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \sqrt{\frac{\arcsin x}{1-x^2}} dx;$
2. $\int \sin(5 + 2x) dx;$
3. $\int \frac{dx}{\arctg 2x \cdot (1+4x^2)};$
4. $\int \frac{e^x dx}{1+e^{2x}};$
5. $\int e^{x^5} \cdot x^4 dx;$
6. $\int \operatorname{tg}^2 \frac{x}{2} dx;$
7. $\int \frac{dx}{\cos^2(3+2x)};$
8. $\int \frac{3x+4}{x^2-25} dx;$

Bo'laklab integrallang:

9. $\int (2 - 3x) \cos 5x dx;$
10. $\int \ln(4x + 1) dx;$
11. $\int \arctg 5x dx;$
12. $\int x^2 \cdot 4^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-3}{x^2+8x+20} dx;$
14. $\int \frac{5x-11}{(x-1)^2(x-2)} dx;$
15. $\int \frac{3x+15}{(x+1)(x^2+5)} dx;$
16. $\int \frac{3x^2+5x-10}{x^2+2x-8} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 10x \cdot \cos^2 10x dx;$
18. $\int \sin 3x \cdot \sin 5x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{7} dx;$
20. $\int \frac{dx}{3\sin x + 5};$
21. $\int \sin^2 11x \cdot \cos^2 11x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x - \sqrt[4]{x^3}} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{16-x^2}} dx;$
25. $\int x^{-1/4} \sqrt{1-x^{2/3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{3-2x-x^2}};$
27. $\int \frac{dx}{\sin^2 12x \cdot \cos^2 12x};$
28. $\int \frac{x^5 - 5x^6 - 3x^7 - 5 + \sqrt[3]{x^5}}{2x^6} dx;$
29. $\int \cos \sqrt{x-1} dx;$
30. $\int \frac{e^{x \cdot \sqrt{e^x - 2}}}{e^{x+5}} dx.$

53-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\arctg 3x}}{1+9x^2} dx;$
2. $\int \cos(2 - 7x) dx;$
3. $\int \frac{dx}{\sin^2 5x \cdot (7 + \operatorname{ctg} 5x)};$
4. $\int \frac{3x^3 dx}{x^8 + 4};$
5. $\int e^{\frac{1}{x}} \cdot \frac{dx}{x^2};$
6. $\int \operatorname{tg}^2 \frac{x}{3} dx;$
7. $\int \frac{dx}{\sin^2(4-7x)};$
8. $\int \frac{4x-1}{x^2+25} dx;$

Bo'laklab integrallang:

9. $\int (2 - 5x) \cos 4x dx;$
10. $\int \ln(4x - 1) dx;$
11. $\int \operatorname{arcctg} 5x dx;$
12. $\int x^2 \cdot 5^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+5} dx;$
14. $\int \frac{3x+2}{x(x+1)^2} dx;$
15. $\int \frac{3x+1}{(x-1)(x^2+2)} dx;$
16. $\int \frac{2x^2-5x+7}{x^2-4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 11x \cdot \cos^2 11x dx;$
18. $\int \sin 3x \cdot \cos 7x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{4} dx;$
20. $\int \frac{dx}{4+5\sin x};$
21. $\int \sin^2 18x \cdot \cos^2 18x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}-\sqrt[3]{x}} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x+2}};$
24. $\int x^2 \sqrt{16-x^2} dx;$
25. $\int x^5 \cdot \sqrt[3]{1+x^4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(8x-11)dx}{\sqrt{5+4x-x^2}};$
27. $\int \frac{dx}{\sin^2 9x \cdot \cos^2 9x};$
28. $\int \frac{x^8-4x^6+5-3x^7+\sqrt[4]{x^7}}{6x^7} dx;$
29. $\int \sin \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-5}}{e^x+2} dx.$

54-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{(\arccos x)^2 \sqrt{1-x^2}}$;
2. $\int \sin(5 + 6x) dx$;
3. $\int \frac{dx}{\arcsin x \cdot \sqrt{1-x^2}}$;
4. $\int \frac{dx}{x \cdot \sqrt{1+\ln^2 x}}$;
5. $\int 2^{\sqrt{x}} \cdot \frac{dx}{\sqrt{x}}$;
6. $\int \operatorname{ctg}^2 \frac{x}{5} dx$;
7. $\int \frac{dx}{\sin^2(7+3x)}$;
8. $\int \frac{7+3x}{25-x^2} dx$;

Bo'laklab integrallang:

9. $\int (2x + 1) \sin 5x dx$;
10. $\int \ln(4 - 3x) dx$;
11. $\int \arcsin 7x dx$;
12. $\int x^2 \cdot 3^{-5x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+2}{x^2-2x+2} dx$;
14. $\int \frac{7x+11}{(x+1)^2(x-2)} dx$;
15. $\int \frac{4x-10}{(x+2)(x^2+2)} dx$;
16. $\int \frac{3x^2+2x-31}{x^2+x-6} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 4x \cdot \cos^2 4x dx$;
18. $\int \sin 4x \cdot \cos 2x dx$;
19. $\int \operatorname{tg}^5 \frac{x}{5} dx$;
20. $\int \frac{dx}{4-5\sin x}$;
21. $\int \sin^2 19x \cdot \cos^2 19x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x} dx}{\sqrt[3]{x^2-\sqrt{x}}}$;
23. $\int \frac{(x-2) dx}{x \cdot \sqrt{x+3}}$;
24. $\int \frac{x^2}{\sqrt{1-x^2}} dx$;
25. $\int x^{-3} (1+x^3)^{-2/3} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3) dx}{\sqrt{6-2x-x^2}}$;
27. $\int \frac{dx}{\sin^2 10x \cdot \cos^2 10x}$;
28. $\int \frac{3x-5x^3-6x^2-1+\sqrt[5]{x^3}}{11x^2} dx$;
29. $\int \operatorname{arctg} \sqrt{x} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-5} dx$.

55-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (\cos x + 2)^{21} \cdot \sin x dx$;
2. $\int \sin(8 - 3x) dx$;
3. $\int \frac{dx}{x(1-\ln x)}$;
4. $\int \frac{x^3 dx}{\sqrt{x^8-1}}$;
5. $\int 2^{\cos 3x} \cdot \sin 3x dx$;
6. $\int \operatorname{ctg}^2 \frac{x}{2} dx$;
7. $\int \frac{dx}{\cos^2(5-2x)}$;
8. $\int \frac{3x+5}{1-4x^2} dx$;

Bo'laklab integrallang:

9. $\int (3x + 7) \sin 4x dx$;
10. $\int \ln(5 - 4x) dx$;
11. $\int \arccos 7x dx$;
12. $\int x^2 \cdot 5^{-x/2} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-2}{x^2-6x+10} dx$;
14. $\int \frac{6x-10}{(x+1)(x-3)^2} dx$;
15. $\int \frac{5x-7}{(x+3)(x^2+2)} dx$;
16. $\int \frac{3x^2+4x-34}{x^2+3x-10} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 9x \cdot \cos^3 9x dx$;
18. $\int \sin x \cdot \sin 3x dx$;
19. $\int \operatorname{tg}^5 \frac{x}{8} dx$;
20. $\int \frac{dx}{3-5\sin x}$;
21. $\int \sin^2 12x \cdot \cos^2 12x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7}-\sqrt[6]{x^5}} dx$;
23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x+2}}$;
24. $\int \frac{x^2}{\sqrt{4-x^2}} dx$;
25. $\int \frac{x dx}{\sqrt[3]{1+x^5}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{4-4x-x^2}}$;
27. $\int \frac{dx}{\sin^2 14x \cdot \cos^2 14x}$;
28. $\int \frac{x^6-3x^5+3-6x^4+\sqrt[3]{x^5}}{2x^5} dx$;
29. $\int 5^{\sqrt{x+1}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+5}}{e^x-2} dx$.

56-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{3x}}{\sqrt[4]{11+e^{3x}}} dx;$
2. $\int \sin(2x + 3) dx;$
3. $\int \frac{dx}{\cos^2 x(2tgx+1)};$
4. $\int \frac{x^4 dx}{\sqrt{1-x^{10}}};$
5. $\int 5^{-\sqrt{x}} \cdot \frac{dx}{\sqrt{x}};$
6. $\int tg^2 5x dx;$
7. $\int \frac{dx}{\sin^2(2-3x)};$
8. $\int \frac{5x+4}{1-9x^2} dx;$

Bo'laklab integrallang:

9. $\int (3 - 2x) \cos 6x dx;$
10. $\int \ln(1 - 4x) dx;$
11. $\int \arctg 4x dx;$
12. $\int x^2 \cdot 4^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+1}{x^2+4x+5} dx;$
14. $\int \frac{x+8}{(x-1)(x+2)^2} dx;$
15. $\int \frac{4x+8}{(x-1)(x^2+3)} dx;$
16. $\int \frac{2x^2+7x-25}{x^2+x-12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 6x \cdot \cos^2 6x dx;$
18. $\int \cos 2x \cdot \cos 5x dx;$
19. $\int ctg^5 3x dx;$
20. $\int \frac{dx}{3-5\cos x};$
21. $\int \sin^2 5x \cdot \cos^2 5x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[3]{x})} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-3}};$
24. $\int x^2 \sqrt{9-x^2} dx;$
25. $\int x^4 (1+2x^2)^{-2/3} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{3+2x-x^2}};$
27. $\int \frac{dx}{\sin^2 17x \cdot \cos^2 17x};$
28. $\int \frac{x^4-3x^3-4x^2-3+\sqrt[5]{x^2}}{8x^3} dx;$
29. $\int \frac{\arcsin x}{\sqrt{1-x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-5}}{e^x-3} dx.$

57-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{x \cdot \sqrt[3]{5-\ln x}} dx;$
2. $\int \sin(3x - 5) dx;$
3. $\int \frac{e^{2x} dx}{1+3e^{2x}};$
4. $\int \frac{x^3 dx}{\sqrt{1-x^8}};$
5. $\int 2^{\ln x} \cdot \frac{dx}{x};$
6. $\int \operatorname{ctg}^2 4x dx;$
7. $\int \frac{dx}{\sin^2(1+4x)};$
8. $\int \frac{4x+2}{x^2-81} dx;$

Bo'laklab integrallang:

9. $\int (4x - 5) \sin 6x dx;$
10. $\int \ln(3x - 2) dx;$
11. $\int \operatorname{arctg} 7x dx;$
12. $\int x^2 \cdot 3^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+1}{x^2-2x+17} dx;$
14. $\int \frac{5x+1}{(x+2)(x-1)^2} dx;$
15. $\int \frac{9x+4}{(x+2)(x^2+3)} dx;$
16. $\int \frac{2x^2+13x-5}{x^2+3x-4} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 7x \cdot \cos^3 7x dx;$
18. $\int \sin 10x \cdot \cos 15x dx;$
19. $\int \operatorname{tg}^5 3x dx;$
20. $\int \frac{dx}{5-4\cos x};$
21. $\int \sin^2 2x \cdot \cos^2 2x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x}}{x(\sqrt{x}+\sqrt[3]{x})} dx;$
23. $\int \frac{(x+3)dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{9-x^2}} dx;$
25. $\int \sqrt[3]{x} \cdot \sqrt[3]{1+\sqrt{x^3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(3x-6)dx}{\sqrt{10-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 18x \cdot \cos^2 18x};$
28. $\int \frac{x^7-5x^6+2-9x^8+\sqrt[5]{x^{11}}}{4x^7} dx;$
29. $\int \cos \sqrt{x+1} dx;$
30. $\int \frac{e^{x \cdot \sqrt{e^x-2}}}{e^x-3} dx.$

58-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^5 dx}{\sqrt{1+x^6}}$;
2. $\int \cos(1-3x) dx$;
3. $\int \frac{dx}{\arcsin 2x \cdot \sqrt{1-4x^2}}$;
4. $\int \frac{x^2 dx}{\sqrt{1-x^6}}$;
5. $\int 7\sqrt{x+1} \cdot \frac{dx}{\sqrt{x+1}}$;
6. $\int tg^2 \frac{x}{5} dx$;
7. $\int \frac{dx}{\cos^2(1-7x)}$;
8. $\int \frac{2x+1}{x^2-9} dx$;

Bo'laklab integrallang:

9. $\int (4-2x) \sin 3x dx$;
10. $\int \ln(3-5x) dx$;
11. $\int \arcsin 5x dx$;
12. $\int x^2 \cdot 3^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-5}{x^2+10x+26} dx$;
14. $\int \frac{5x-11}{(x-1)^2(x-2)} dx$;
15. $\int \frac{3x+1}{(x-1)(x^2+2)} dx$;
16. $\int \frac{3x^2+2x-31}{x^2+x-6} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 9x \cdot \cos^3 9x dx$;
18. $\int \cos 2x \cdot \cos 5x dx$;
19. $\int tg^5 3x dx$;
20. $\int \frac{dx}{2-3\sin x}$;
21. $\int \sin^2 3x \cdot \cos^2 3x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}-x)} dx$;
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x-3}}$;
24. $\int \frac{x^2}{\sqrt{1-9x^2}} dx$;
25. $\int \frac{dx}{x^2(1+x^3)^{4/3}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-5)dx}{\sqrt{3+6x-x^2}}$;
27. $\int \frac{dx}{\sin^2 11x \cdot \cos^2 11x}$;
28. $\int \frac{x^6-7x^5+4-4x^9+2\sqrt[4]{x^3}}{3x^6} dx$;
29. $\int \frac{\arcsin x}{\sqrt{1+x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x-3} dx$.

59-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{\sqrt[4]{7x-5}}$;
2. $\int \sin(2-4x)dx$;
3. $\int \frac{e^{5x}dx}{e^{5x}-8}$;
4. $\int \frac{e^{3x}dx}{1+e^{6x}}$;
5. $\int 7^{1+\lg x} \cdot \frac{dx}{x}$;
6. $\int \operatorname{ctg}^2 \frac{x}{3} dx$;
7. $\int \frac{dx}{\cos^2(2x-1)}$;
8. $\int \frac{7x+2}{9-x^2} dx$;

Bo'laklab integrallang:

9. $\int (2-x)\sin 5x dx$;
10. $\int \ln(2x+5) dx$;
11. $\int \arcsin 4x dx$;
12. $\int x^2 \cdot 2^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-3}{x^2+8x+20} dx$;
14. $\int \frac{3x+2}{x(x+1)^2} dx$;
15. $\int \frac{4x-10}{(x+2)(x^2+2)} dx$;
16. $\int \frac{3x^2+4x-34}{x^2+3x-10} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 6x \cdot \cos^2 6x dx$;
18. $\int \sin 10x \cdot \cos 15x dx$;
19. $\int \operatorname{ctg}^5 \frac{x}{6} dx$;
20. $\int \frac{dx}{5+3\cos x}$;
21. $\int \sin^2 6x \cdot \cos^2 6x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[3]{x^2+x}} dx$;
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-2}}$;
24. $\int x^2 \sqrt{1-9x^2} dx$;
25. $\int \frac{\sqrt[3]{1+\sqrt[3]{x}} dx}{\sqrt{x}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+2)dx}{\sqrt{6+4x-x^2}}$;
27. $\int \frac{dx}{\sin^2 7x \cdot \cos^2 7x}$;
28. $\int \frac{x^2-2x^4-7x^3-3+\sqrt[4]{x^3}}{5x^3} dx$;
29. $\int \frac{\arccos x}{\sqrt{1+x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+3} dx$.

60-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos x dx}{\sqrt[5]{\sin^2 x}}$;
2. $\int \cos(2x - 7) dx$;
3. $\int \frac{dx}{\arctg x \cdot (1+x^2)}$;
4. $\int \frac{e^x dx}{\sqrt{9+e^{2x}}}$;
5. $\int 4^{\arcsin x} \cdot \frac{dx}{\sqrt{1-x^2}}$;
6. $\int tg^2 7x dx$;
7. $\int \frac{dx}{\sin^2(1-2x)}$;
8. $\int \frac{3x-1}{16-x^2} dx$;

Bo'laklab integrallang:

9. $\int (3x - 4)\cos 5x dx$; 10. $\int \ln(3 - 2x) dx$;
11. $\int \arccos 4x dx$; 12. $\int x^2 \cdot 4^{-5x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+5} dx$;
14. $\int \frac{7x+11}{(x+1)^2(x-2)} dx$;
15. $\int \frac{5x-7}{(x+3)(x^2+2)} dx$; 16. $\int \frac{2x^2+7x-25}{x^2+x-12} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 7x \cdot \cos^3 7x dx$;
18. $\int \sin 5x \cdot \cos 8x dx$;
19. $\int ctg^5 2x dx$; 20. $\int \frac{dx}{2-3\cos x}$;
21. $\int \sin^2 10x \cdot \cos^2 10x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(4+\sqrt[3]{x})} dx$;
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-5}}$;
24. $\int x^2 \sqrt{1-25x^2} dx$; 25. $\int x^{-1/3} (1+3x^{1/2})^{1/5} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-1)dx}{\sqrt{1-4x-x^2}}$; 27. $\int \frac{dx}{\sin^2 3x \cdot \cos^2 3x}$;
28. $\int \frac{x^3-3x^4-5x^6+3+2\sqrt[4]{x^3}}{9x^5} dx$; 29. $\int \sin \sqrt{x-1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-1} dx$.

61-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (3 - 2x)^{64} dx;$
2. $\int \cos(1 + 4x) dx;$
3. $\int \frac{2^{9x} dx}{9 - 2^{9x}};$
4. $\int \frac{dx}{x(1 + \lg^2 x)};$
5. $\int 8^{\sqrt[3]{x}} \cdot \frac{dx}{\sqrt[3]{x^2}};$
6. $\int \operatorname{tg}^2 \frac{x}{4} dx;$
7. $\int \frac{dx}{\sin^2(3x+5)};$
8. $\int \frac{2x-5}{x^2+16} dx;$

Bo'laklab integrallang:

9. $\int (2x - 3) \cos 3x dx;$
10. $\int \ln(2 + 5x) dx;$
11. $\int \operatorname{arctg} 5x dx;$
12. $\int x^2 \cdot 5^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+2}{x^2-2x+2} dx;$
14. $\int \frac{6x-10}{(x+1)(x-3)^2} dx;$
15. $\int \frac{4x+8}{(x-1)(x^2+3)} dx;$
16. $\int \frac{2x^2+13x-5}{x^2+3x-4} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 4x \cdot \cos^3 4x dx;$
18. $\int \cos 3x \cdot \cos 7x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{4 \sin x + 5};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x}}{\sqrt{x} + \sqrt[3]{x^2}} dx;$
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+1}};$
24. $\int \frac{x^2}{\sqrt{1-25x^2}} dx;$
25. $\int x^{1/2} \left(1 - x^{1/3}\right)^{1/4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{1-2x-x^2}};$
27. $\int \frac{dx}{\sin^2 2x \cdot \cos^2 2x};$
28. $\int \frac{x^3 - 4x - 7x^2 - 2 + \sqrt[3]{x^5}}{3x^2} dx;$
29. $\int \operatorname{arcctg} \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x - 2}}{e^x + 5} dx.$

62-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int x \cdot \sqrt[3]{x^2 + 1} dx;$
2. $\int \sin(2 + 3x) dx;$
3. $\int \frac{dx}{x \cdot (5 - \ln x)};$
4. $\int \frac{dx}{x \sqrt{1 - \ln^2 x}};$
5. $\int \frac{e^{\arccos 2x} dx}{\sqrt{1 - 4x^2}};$
6. $\int \operatorname{ctg}^2 2x dx;$
7. $\int \frac{dx}{\cos^2(5x + 3)};$
8. $\int \frac{4x + 3}{x^2 + 16} dx;$

Bo'laklab integrallang:

9. $\int (3 + 5x) \sin 2x dx;$
10. $\int \ln(4x + 1) dx;$
11. $\int \operatorname{arcctg} 5x dx;$
12. $\int x^2 \cdot 3^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x - 2}{x^2 - 6x + 10} dx;$
14. $\int \frac{x + 8}{(x - 1)(x + 2)^2} dx;$
15. $\int \frac{9x + 4}{(x + 2)(x^2 + 3)} dx;$
16. $\int \frac{3x^2 - 7x - 38}{x^2 - 2x - 8} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 15x \cdot \cos^2 15x dx;$
18. $\int \sin 2x \cdot \sin 4x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{3} dx;$
20. $\int \frac{dx}{3 + 5 \cos x};$
21. $\int \sin^2 13x \cdot \cos^2 13x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x - \sqrt[3]{x^2}} dx;$
23. $\int \frac{(x - 3) dx}{x \cdot \sqrt{x + 1}};$
24. $\int x^2 \sqrt{1 - 16x^2} dx;$
25. $\int \frac{\sqrt[3]{1 + \sqrt[4]{x}}}{\sqrt[5]{x}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x - 2) dx}{\sqrt{5 - 4x - x^2}};$
27. $\int \frac{dx}{\sin^2 6x \cdot \cos^2 6x};$
28. $\int \frac{x^5 - 3x^4 + 2 - 5x^3 + \sqrt[3]{x^2}}{8x^4} dx;$
29. $\int \cos \sqrt{x - 1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x - 5}}{e^x + 2} dx.$

63-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt[4]{1+\ln x}}{x} dx;$
2. $\int \cos(3 - 4x) dx;$
3. $\int \frac{dx}{\cos^2 x \cdot (1+3tgx)};$
4. $\int \frac{2^{3x} dx}{\sqrt{9+4^{3x}}};$
5. $\int 9^{\frac{2}{x}} \cdot \frac{dx}{x^2};$
6. $\int ctg^2 3x dx;$
7. $\int \frac{dx}{\cos^2(2-5x)};$
8. $\int \frac{5x-1}{x^2+9} dx;$

Bo'laklab integrallang:

9. $\int (2 - 3x) \cos 5x dx;$
10. $\int \ln(4x - 1) dx;$
11. $\int \arcsin 7x dx;$
12. $\int x^2 \cdot 5^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+1}{x^2+4x+5} dx;$
14. $\int \frac{5x+1}{(x+2)(x-1)^2} dx;$
15. $\int \frac{5x+18}{(x-4)(x^2+3)} dx;$
16. $\int \frac{2x^2-7x-3}{x^2-6x+5} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 8x \cdot \cos^2 8x dx;$
18. $\int \sin 2x \cdot \cos 4x dx;$
19. $\int ctg^5 \frac{x}{3} dx;$
20. $\int \frac{dx}{2+3\cos x};$
21. $\int \sin^2 7x \cdot \cos^2 7x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7} + \sqrt[6]{x^5}} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-3}};$
24. $\int \frac{x^2}{\sqrt{1-16x^2}} dx;$
25. $\int x^{-2/3} \left(1 + x^{1/2}\right)^{1/2} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{5+2x-x^2}};$
27. $\int \frac{dx}{\sin^2 8x \cdot \cos^2 8x};$
28. $\int \frac{x^5-5x^6-3x^7-5+\sqrt[3]{x^5}}{2x^6} dx;$
29. $\int \sin \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-5} dx.$

64-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{2x}}{\sqrt{9+e^{2x}}} dx;$
2. $\int \sin(4x + 5) dx;$
3. $\int \frac{dx}{\arcsin 3x \cdot \sqrt{1-9x^2}};$
4. $\int \frac{dx}{x \sqrt{\lg^2 x - 4}};$
5. $\int \frac{e^{\operatorname{arctg} 5x} dx}{1+25x^2};$
6. $\int \operatorname{tg}^2 3x dx;$
7. $\int \frac{dx}{\sin^2(4x-3)};$
8. $\int \frac{3x+4}{x^2-25} dx;$

Bo'laklab integrallang:

9. $\int (2 - 5x) \cos 4x dx;$
10. $\int \ln(4 - 3x) dx;$
11. $\int \arccos 7x dx;$
12. $\int x^2 \cdot 4^{-x}/2 dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+1}{x^2-2x+17} dx;$
14. $\int \frac{3x-8}{(x-3)(x-2)^2} dx;$
15. $\int \frac{7x-26}{(x+4)(x^2+2)} dx;$
16. $\int \frac{3x^2+x-38}{x^2-x-12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 10x \cdot \cos^3 10x dx;$
18. $\int \sin 3x \cdot \cos 10x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{5-3\cos x};$
21. $\int \sin^2 15x \cdot \cos^2 15x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[6]{x})} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+3}};$
24. $\int x^2 \sqrt{36 - x^2} dx;$
25. $\int \frac{\sqrt[3]{x^2-4} dx}{x^2};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+1)dx}{\sqrt{1-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 12x \cdot \cos^2 12x};$
28. $\int \frac{x^8-4x^6+5-3x^7+\sqrt[4]{x^7}}{6x^7} dx;$
29. $\int \operatorname{arctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+5}}{e^x-2} dx.$

65-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\operatorname{tg} 2x}{\cos^2 2x} dx;$
2. $\int \cos(5x - 1) dx;$
3. $\int \frac{dx}{\operatorname{arctg} 5x \cdot (1+25x^2)};$
4. $\int \frac{x^2 dx}{1+x^2};$
5. $\int \frac{2^{\operatorname{arctg} 2x} dx}{1+4x^2};$
6. $\int \operatorname{tg}^2 2x dx;$
7. $\int \frac{dx}{\cos^2(3+2x)};$
8. $\int \frac{4x-1}{x^2+25} dx;$

Bo'laklab integrallang:

9. $\int (2x + 1) \sin 5x dx;$
10. $\int \ln(5 - 4x) dx;$
11. $\int \operatorname{arctg} 4x dx;$
12. $\int x^2 \cdot 3^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+2}{x^2+8x+17} dx;$
14. $\int \frac{x-13}{(x+3)(x-1)^2} dx;$
15. $\int \frac{5x+13}{(x-1)(x^2+5)} dx;$
16. $\int \frac{3x^2+15x+8}{x^2+4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 5x \cdot \cos^2 5x dx;$
18. $\int \cos x \cdot \cos 3x dx;$
19. $\int \operatorname{ctg}^5 4x dx;$
20. $\int \frac{dx}{3+5\sin x};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(1+\sqrt[6]{x})} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x+3}};$
24. $\int x^2 \sqrt{1-x^2} dx;$
25. $\int \frac{\sqrt{x^2-4} dx}{\sqrt[3]{x}};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{3-2x-x^2}};$
27. $\int \frac{dx}{\sin^2 9x \cdot \cos^2 9x};$
28. $\int \frac{3x-5x^3-6x^2-1+\sqrt[5]{x^3}}{11x^2} dx;$
29. $\int 5^{\sqrt{x+1}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-5}}{e^x-3} dx.$

66-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2}{\sqrt[5]{x^3+4}} dx;$
2. $\int \cos(4 - 3x) dx;$
3. $\int \frac{dx}{(x+1) \cdot (2 - \ln(x+1))};$
4. $\int \frac{x^3 dx}{\sqrt{1+x^8}};$
5. $\int e^{tg2x} \frac{dx}{\cos^2 2x};$
6. $\int tg^2 \frac{x}{2} dx;$
7. $\int \frac{dx}{\sin^2(4-7x)};$
8. $\int \frac{7+3x}{25-x^2} dx;$

Bo'laklab integrallang:

9. $\int (3x + 7) \sin 4x dx;$
10. $\int \ln(1 - 4x) dx;$
11. $\int \arctg 7x dx;$
12. $\int x^2 \cdot 2^{-\frac{x}{2}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+3} dx;$
14. $\int \frac{x+4}{(x+3)(x+2)^2} dx;$
15. $\int \frac{5x+8}{(x-2)(x^2+5)} dx;$
16. $\int \frac{2x^2+x-37}{x^2-x+20} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 8x \cdot \cos^3 8x dx ;$
18. $\int \sin x \cdot \sin 5x dx;$
19. $\int ctg^5 5x dx;$
20. $\int \frac{dx}{3\sin x + 2};$
21. $\int \sin^2 14x \cdot \cos^2 14x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(\sqrt[3]{x}-5)} dx ;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-1}} ;$
24. $\int x^2 \sqrt{4-x^2} dx;$
25. $\int x^{-1/4} \sqrt{1-x^{2/3}} dx ;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(8x-11)dx}{\sqrt{5+4x-x^2}};$
27. $\int \frac{dx}{\sin^2 10x \cdot \cos^2 10x};$
28. $\int \frac{x^6-3x^5+3-6x^4+\sqrt[3]{x^5}}{2x^5} dx;$
29. $\int \frac{\arcsin x}{\sqrt{1-x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x-3} dx.$

67-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{\sin^2 x \cdot \sqrt[3]{\operatorname{ctg} x + 1}} dx;$
2. $\int \sin(5 - 2x) dx;$
3. $\int \frac{dx}{\cos^2 2x \cdot (1 + 3 \operatorname{tg} 2x)};$
4. $\int \frac{x^2 dx}{\sqrt{1 + x^6}};$
5. $\int e^{x^5} \cdot x^4 dx;$
6. $\int \operatorname{tg}^2 \frac{x}{3} dx;$
7. $\int \frac{dx}{\sin^2(7 + 3x)};$
8. $\int \frac{3x + 5}{1 - 4x^2} dx;$

Bo'laklab integrallang:

9. $\int (3 - 2x) \cos 6x dx;$
10. $\int \ln(3x - 2) dx;$
11. $\int \operatorname{arcctg} 7x dx;$
12. $\int x^2 \cdot 4^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x - 2}{x^2 - 4x + 5} dx;$
14. $\int \frac{3x - 7}{(x - 2)(x - 3)^2} dx;$
15. $\int \frac{3x + 21}{(x + 2)(x^2 + 5)} dx;$
16. $\int \frac{3x^2 - x - 46}{x^2 - 2x - 15} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 3x \cdot \cos^3 3x dx;$
18. $\int \sin 4x \cdot \sin 6x dx;$
19. $\int \operatorname{tg}^5 5x dx;$
20. $\int \frac{dx}{5 - 3 \sin x};$
21. $\int \sin^2 9x \cdot \cos^2 9x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x(3 + \sqrt{x})}} dx;$
23. $\int \frac{(x - 3) dx}{x \cdot \sqrt{x - 2}};$
24. $\int \frac{x^2}{\sqrt{16 - x^2}} dx;$
25. $\int x^5 \cdot \sqrt[3]{1 + x^4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x + 3) dx}{\sqrt{6 - 2x - x^2}};$
27. $\int \frac{dx}{\sin^2 14x \cdot \cos^2 14x};$
28. $\int \frac{x^4 - 3x^3 - 4x^2 - 3 + \sqrt[5]{x^2}}{8x^3} dx;$
29. $\int \cos \sqrt{x + 1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x + 2}}{e^x - 3} dx.$

68-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos 2x dx}{\sqrt[3]{\sin^4 2x}}$;
2. $\int \sin(7x - 4) dx$;
3. $\int \frac{5^{3x} dx}{1 - 5^{3x}}$;
4. $\int \frac{e^x dx}{1 + e^{2x}}$;
5. $\int e^{\frac{1}{x}} \cdot \frac{dx}{x^2}$;
6. $\int \operatorname{ctg}^2 \frac{x}{5} dx$;
7. $\int \frac{dx}{\cos^2(5-2x)}$;
8. $\int \frac{5x+4}{1-9x^2} dx$;

Bo'laklab integrallang:

9. $\int (4x - 5) \sin 6x dx$; 10. $\int \ln(2x - 5) dx$;
11. $\int \arcsin 2x dx$; 12. $\int x^2 \cdot 3^{-2x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+3}{x^2-10x+29} dx$;
14. $\int \frac{3x+7}{(x+2)(x+3)^2} dx$;
15. $\int \frac{5x+14}{(x-2)(x^2+4)} dx$;
16. $\int \frac{2x^2-12x+19}{x^2-7x+10} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 3x \cdot \cos^2 3x dx$;
18. $\int \cos 2x \cdot \cos 3x dx$;
19. $\int \operatorname{tg}^5 4x dx$;
20. $\int \frac{dx}{5+4\sin x}$;
21. $\int \sin^2 20x \cdot \cos^2 20x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}+x)} dx$;
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-2}}$;
24. $\int x^2 \sqrt{16 - x^2} dx$;
25. $\int x^{-3} (1 + x^3)^{-2/3} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{4-4x-x^2}}$;
27. $\int \frac{dx}{\sin^2 17x \cdot \cos^2 17x}$;
28. $\int \frac{x^7 - 5x^6 + 2 - 9x^8 + \sqrt[5]{x^{11}}}{4x^7} dx$;
29. $\int e^{\sqrt{2x+1}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x - 2}}{e^x + 3} dx$.

69-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\ln(2x+1)}dx}{2x+1}$;
2. $\int \cos(6 - 5x)dx$;
3. $\int \frac{dx}{\arctg 2x \cdot (1+4x^2)}$;
4. $\int \frac{3x^3 dx}{x^8+4}$;
5. $\int 2^{\sqrt{x}} \cdot \frac{dx}{\sqrt{x}}$;
6. $\int \text{ctg}^2 \frac{x}{2} dx$;
7. $\int \frac{dx}{\sin^2(2-3x)}$;
8. $\int \frac{4x+2}{x^2-81} dx$;

Bo'laklab integrallang:

9. $\int (3 + 2x)\sin 4x dx$; 10. $\int \ln(2x + 1) dx$;
11. $\int \arccos 2x dx$; 12. $\int x^2 \cdot e^{-2x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+4}{x^2-10x+29} dx$;
14. $\int \frac{3x-4}{(x-1)(x-2)^2} dx$;
15. $\int \frac{3x-15}{(x+3)(x^2+3)} dx$; 16. $\int \frac{3x^2+20x+34}{x^2+7x+12} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 2x \cdot \cos^2 2x dx$;
18. $\int \sin 5x \cdot \sin 9x dx$;
19. $\int \text{ctg}^5 \frac{x}{6} dx$; 20. $\int \frac{dx}{5-4\sin x}$;
21. $\int \sin^2 16x \cdot \cos^2 16x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x-\sqrt{x^3}} dx$;
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x+2}}$;
24. $\int \frac{x^2}{\sqrt{1-x^2}} dx$; 25. $\int \frac{xdx}{\sqrt[3]{1+x^5}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{3+2x-x^2}}$; 27. $\int \frac{dx}{\sin^2 18x \cdot \cos^2 18x}$;
28. $\int \frac{x^7-5x^5-4x^3-2+\sqrt[3]{x^8}}{2x^6} dx$; 29. $\int 2^{\sqrt{x}} dx$;
30. $\int \frac{e^{x \cdot \sqrt{e^x-1}}}{e^{x+1}} dx$.

70-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2 dx}{\sqrt[5]{(3+2x^3)^4}}$;
2. $\int \sin(5 + 2x) dx$;
3. $\int \frac{dx}{\sin^2 5x \cdot (7 + \operatorname{ctg} 5x)}$;
4. $\int \frac{dx}{x \cdot \sqrt{1 + \ln^2 x}}$;
5. $\int 2^{\cos 3x} \cdot \sin 3x dx$;
6. $\int \operatorname{tg}^2 5x dx$;
7. $\int \frac{dx}{\sin^2(1+4x)}$;
8. $\int \frac{7-2x}{81-x^2} dx$;

Bo'laklab integrallang:

9. $\int (5 - 2x) \cos 4x dx$;
10. $\int \ln(2x - 1) dx$;
11. $\int \arccos 3x dx$;
12. $\int x^2 \cdot 2^{-2x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-1}{x^2+6x+10} dx$;
14. $\int \frac{6x+10}{(x-1)(x+3)^2} dx$;
15. $\int \frac{8x+4}{(x-3)(x^2+5)} dx$;
16. $\int \frac{2x^2-11x+3}{x^2-5x+4} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 5x \cdot \cos^3 5x dx$;
18. $\int \cos x \cdot \sin 7x dx$;
19. $\int \operatorname{tg}^5 \frac{x}{4} dx$;
20. $\int \frac{dx}{4+5\cos x}$;
21. $\int \sin^2 11x \cdot \cos^2 11x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}-\sqrt[3]{x}} dx$;
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+3}}$;
24. $\int \frac{x^2}{\sqrt{4-x^2}} dx$;
25. $\int x^4(1+2x^2)^{-2/3} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(3x-6)dx}{\sqrt{10-6x-x^2}}$;
27. $\int \frac{dx}{\sin^2 13x \cdot \cos^2 13x}$;
28. $\int \frac{x^2-3x^3-9x^4+1+\sqrt[5]{x^4}}{6x^4} dx$;
29. $\int 2^{-\sqrt{x}} dx$;
30. $\int \frac{e^{x \cdot \sqrt{e^x-1}}}{e^x+2} dx$.

71-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \sqrt{\frac{\arcsin x}{1-x^2}} dx;$
2. $\int \cos(2-7x) dx;$
3. $\int \frac{dx}{\arcsin x \cdot \sqrt{1-x^2}};$
4. $\int \frac{x^3 dx}{\sqrt{x^8-1}};$
5. $\int 5^{-\sqrt{x}} \cdot \frac{dx}{\sqrt{x}};$
6. $\int \operatorname{ctg}^2 4x dx;$
7. $\int \frac{dx}{\cos^2(5x-1)};$
8. $\int \frac{12x+5}{81+x^2} dx;$

Bo'laklab integrallang:

9. $\int (1-5x) \sin 6x dx;$
10. $\int \ln(1-2x) dx;$
11. $\int \arcsin 3x dx;$
12. $\int x^2 \cdot 4^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+5}{x^2+4x+8} dx;$
14. $\int \frac{2x-14}{(x+1)(x-3)^2} dx;$
15. $\int \frac{5x-11}{(x-3)(x^2+4)} dx;$
16. $\int \frac{2x^2-x-13}{x^2-x-2} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 7x \cdot \cos^2 7x dx;$
18. $\int \sin 3x \cdot \cos 2x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{7} dx;$
20. $\int \frac{dx}{3 \sin x + 5};$
21. $\int \sin^2 18x \cdot \cos^2 18x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x} dx}{\sqrt[3]{x^2-\sqrt{x}}};$
23. $\int \frac{(x-3) dx}{x \cdot \sqrt{x+2}};$
24. $\int x^2 \sqrt{9-x^2} dx;$
25. $\int \sqrt[3]{x} \cdot \sqrt[3]{1+\sqrt{x^3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x+1) dx}{\sqrt{1-8x-x^2}};$
27. $\int \frac{dx}{\sin^2 21x \cdot \cos^2 21x};$
28. $\int \frac{x-4x^2-9x^3+\sqrt[5]{x^7}-1}{5x^3} dx;$
29. $\int \operatorname{arctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x+2} dx.$

72-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\arctg 3x}}{1+9x^2} dx;$
2. $\int \sin(5 + 6x) dx;$
3. $\int \frac{dx}{x(1-\ln x)};$
4. $\int \frac{x^4 dx}{\sqrt{1-x^{10}}};$
5. $\int 2^{\ln x} \cdot \frac{dx}{x};$
6. $\int \operatorname{ctg}^2 6x dx;$
7. $\int \frac{dx}{\cos^2(7x+2)};$
8. $\int \frac{2x+7}{25x^2-1} dx;$

Bo'laklab integrallang:

9. $\int (6x - 2)\cos 3x dx;$
10. $\int \ln(2 - 3x) dx;$
11. $\int \arctg 2x dx;$
12. $\int x^2 \cdot 5^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-5}{x^2-8x+20} dx;$
14. $\int \frac{7x+11}{(x-2)(x+3)^2} dx;$
15. $\int \frac{16x-1}{(x-5)(x^2+2)} dx;$
16. $\int \frac{3x^2-13x-4}{x^2-4x-5} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 9x \cdot \cos^2 9x dx;$
18. $\int \cos x \cdot \cos 5x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{7} dx;$
20. $\int \frac{dx}{4+5\sin x};$
21. $\int \sin^2 19x \cdot \cos^2 19x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7}-\sqrt[6]{x^5}} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-3}};$
24. $\int \frac{x^2}{\sqrt{9-x^2}} dx;$
25. $\int x^{3/2} \sqrt{1+x^{3/5}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-6)dx}{\sqrt{1+8x-x^2}};$
27. $\int \frac{dx}{\sin^2 19x \cdot \cos^2 19x};$
28. $\int \frac{x^3-3x^2-2x-7+\sqrt[4]{x}}{5x^2} dx;$
29. $\int \operatorname{arcctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-1} dx.$

73-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{(\arccos x)^2 \sqrt{1-x^2}}$;
2. $\int \sin(8-3x) dx$;
3. $\int \frac{dx}{\cos^2 x (2tgx+1)}$;
4. $\int \frac{x^3 dx}{\sqrt{1-x^8}}$;
5. $\int 3^{ctgx} \cdot \frac{dx}{\sin^2 x}$;
6. $\int tg^2 4x dx$;
7. $\int \frac{dx}{\sin^2(3-4x)}$;
8. $\int \frac{3x-8}{25x^2+1} dx$;

Bo'laklab integrallang:

9. $\int (1-x) \cos 2x dx$;
10. $\int \ln(2x-3) dx$;
11. $\int \text{arcctg} 2x dx$;
12. $\int x^2 \cdot 3^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-1}{x^2-10x+26} dx$;
14. $\int \frac{7x-4}{(x+3)(x-2)^2} dx$;
15. $\int \frac{3x-10}{(x+2)(x^2+4)} dx$;
16. $\int \frac{3x^2-2x-31}{x^2-x-6} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 2x \cdot \cos^3 2x dx$;
18. $\int \sin 3x \cdot \sin 5x dx$;
19. $\int ctg^5 \frac{x}{4} dx$;
20. $\int \frac{dx}{4-5\sin x}$;
21. $\int \sin^2 12x \cdot \cos^2 12x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[3]{x})} dx$;
23. $\int \frac{(x+3)dx}{x \cdot \sqrt{x-2}}$;
24. $\int x^2 \sqrt{25-x^2} dx$;
25. $\int x^3 \cdot \sqrt[4]{1+x^4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+5)dx}{\sqrt{2+6x-x^2}}$;
27. $\int \frac{dx}{\sin^2 15x \cdot \cos^2 15x}$;
28. $\int \frac{2x^3-x^2+7-3x+\sqrt[3]{x}}{3x^3} dx$;
29. $\int 3^{\sqrt{x}} dx$;
30. $\int \frac{e^{x \cdot \sqrt{e^x+3}}}{e^{x-2}} dx$.

74-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (\cos x + 2)^{21} \cdot \sin x dx$;
2. $\int \sin(2x + 3) dx$;
3. $\int \frac{e^{2x} dx}{1+3e^{2x}}$;
4. $\int \frac{x dx}{\sqrt{3-x^4}}$;
5. $\int \frac{4^{\arctg 3x} \cdot dx}{1+9x^2}$;
6. $\int \operatorname{tg}^2 6x dx$;
7. $\int \frac{dx}{\cos^2(3-5x)}$;
8. $\int \frac{x+1}{4x^2-9} dx$;

Bo'laklab integrallang:

9. $\int (2x + 5) \sin 3x dx$;
10. $\int \ln(2 + 3x) dx$;
11. $\int \arctg 3x dx$;
12. $\int x^2 \cdot 2^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+3}{x^2-8x+17} dx$;
14. $\int \frac{3x+4}{(x+1)(x+2)^2} dx$;
15. $\int \frac{11x-4}{(x-4)(x^2+4)} dx$;
16. $\int \frac{2x^2+12x+19}{x^2+7x+10} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 10x \cdot \cos^2 10x dx$;
18. $\int \sin 3x \cdot \cos 7x dx$;
19. $\int \operatorname{tg}^5 \frac{x}{5} dx$;
20. $\int \frac{dx}{3-5\sin x}$;
21. $\int \sin^2 5x \cdot \cos^2 5x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x}}{x(\sqrt{x}+\sqrt[3]{x})} dx$;
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+2}}$;
24. $\int \frac{x^2}{\sqrt{25-x^2}} dx$;
25. $\int x^{1/3} \left(2 + x^{2/5}\right)^{1/4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{2-8x-x^2}}$;
27. $\int \frac{dx}{\sin^2 20x \cdot \cos^2 20x}$;
28. $\int \frac{7x^4-x^6-3x-6+\sqrt[4]{x^3}}{2x^5} dx$;
29. $\int 3^{-\sqrt{x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+2} dx$.

75-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{3x}}{\sqrt[4]{11+e^{3x}}} dx;$
2. $\int \sin(3x - 5) dx;$
3. $\int \frac{dx}{\cos^2 x(3+2tgx)};$
4. $\int \frac{e^x dx}{\sqrt{1-e^{2x}}};$
5. $\int \frac{5^{\ln 2x} \cdot dx}{x};$
6. $\int ctg^2 7x dx;$
7. $\int \frac{dx}{\sin^2(7x-5)};$
8. $\int \frac{3x-4}{x^2-4} dx;$

Bo'laklab integrallang:

9. $\int (4x + 1) \sin 2x dx;$
10. $\int \ln(4 - 5x) dx;$
11. $\int \arctg 3x dx;$
12. $\int x^2 \cdot 4^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-4}{x^2+6x+13} dx;$
14. $\int \frac{3x+2}{(x+2)(x+1)^2} dx;$
15. $\int \frac{3x-7}{(x+1)(x^2+4)} dx;$
16. $\int \frac{3x^2+5x-10}{x^2+2x-8} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 11x \cdot \cos^2 11x dx;$
18. $\int \sin 4x \cdot \cos 2x dx;$
19. $\int tg^5 \frac{x}{8} dx;$
20. $\int \frac{dx}{3-5\cos x};$
21. $\int \sin^2 2x \cdot \cos^2 2x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}+\sqrt[3]{x}} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x+3}};$
24. $\int x^2 \sqrt{1-4x^2} dx;$
25. $\int x^4 \cdot \sqrt[3]{(1+x^3)^2} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3)dx}{\sqrt{5-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 4x \cdot \cos^2 4x};$
28. $\int \frac{x^8-5x^7+6-3x^6+\sqrt[4]{x^{10}}}{2x^7} dx;$
29. $\int \sin \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+1} dx.$

76-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{x \cdot \sqrt[3]{5-\ln x}} dx;$
2. $\int \cos(2-5x) dx;$
3. $\int \frac{dx}{\sin^2 3x \cdot (2+\operatorname{ctg} 3x)};$
4. $\int \frac{dx}{x(1+\ln^2 x)};$
5. $\int 3^{\sqrt{x-1}} \cdot \frac{dx}{\sqrt{x-1}};$
6. $\int \operatorname{ctg}^2 5x dx;$
7. $\int \frac{dx}{\cos^2(2+3x)};$
8. $\int \frac{5x+3}{4-x^2} dx;$

Bo'laklab integrallang:

9. $\int (3x+1)\cos 2x dx;$
10. $\int \ln(5+3x) dx;$
11. $\int \arccos 5x dx;$
12. $\int x^2 \cdot 5^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-3}{x^2-4x+8} dx;$
14. $\int \frac{x-8}{x(x-2)^2} dx;$
15. $\int \frac{3x+15}{(x+1)(x^2+5)} dx;$
16. $\int \frac{2x^2-5x+7}{x^2-4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 4x \cdot \cos^2 4x dx;$
18. $\int \sin x \cdot \sin 3x dx;$
19. $\int \operatorname{ctg}^5 3x dx;$
20. $\int \frac{dx}{5-4\cos x};$
21. $\int \sin^2 4x \cdot \cos^2 4x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[4]{x^3+x}} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-3}};$
24. $\int \frac{x^2}{\sqrt{1-4x^2}} dx;$
25. $\int x^{-2/3} \sqrt{1+x^{1/3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{3+8x-x^2}};$
27. $\int \frac{dx}{\sin^2 5x \cdot \cos^2 5x};$
28. $\int \frac{x^3-5x^5-3x-4+\sqrt[3]{x^5}}{2x^4} dx;$
29. $\int \cos \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-3} dx.$

77-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^5 dx}{\sqrt{1+x^6}}$;
2. $\int \sin(2-4x) dx$;
3. $\int \frac{dx}{\arctg x \cdot (1+x^2)}$;
4. $\int \frac{dx}{x(1+\lg^2 x)}$;
5. $\int \frac{e^{\arccos 2x} dx}{\sqrt{1-4x^2}}$;
6. $\int \operatorname{ctg}^2 3x dx$;
7. $\int \frac{dx}{\sin^2(4x-3)}$;
8. $\int \frac{4x-1}{x^2+25} dx$;

Bo'laklab integrallang:

9. $\int (3x+7)\sin 4x dx$;
10. $\int \ln(3x-2) dx$;
11. $\int \arcsin 2x dx$;
12. $\int x^2 \cdot e^{-2x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-1}{x^2+6x+10} dx$;
14. $\int \frac{2x-14}{(x+1)(x-3)^2} dx$;
15. $\int \frac{16x-1}{(x-5)(x^2+2)} dx$;
16. $\int \frac{3x^2-2x-31}{x^2-x-6} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 10x \cdot \cos^2 10x dx$;
18. $\int \sin 4x \cdot \cos 2x dx$;
19. $\int \operatorname{ctg}^5 3x dx$;
20. $\int \frac{dx}{2-3\sin x}$;
21. $\int \sin^2 6x \cdot \cos^2 6x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(4+\sqrt[3]{x})} dx$;
23. $\int \frac{(x-2)dx}{x\sqrt{x+1}}$;
24. $\int x^2 \sqrt{1-16x^2} dx$;
25. $\int x^{-2/3} (1+x^{1/2})^{1/2} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+1)dx}{\sqrt{1-6x-x^2}}$;
27. $\int \frac{dx}{\sin^2 9x \cdot \cos^2 9x}$;
28. $\int \frac{x^6-3x^5+3-6x^4+\sqrt[3]{x^5}}{2x^5} dx$;
29. $\int \cos \sqrt{x+1} dx$;
30. $\int \frac{e^{x\sqrt{e^x-2}}}{e^x+3} dx$.

78-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{\sqrt[4]{7x-5}}$;
2. $\int \cos(2x - 7)dx$;
3. $\int \frac{2^{9x} dx}{9-2^{9x}}$;
4. $\int \frac{dx}{x\sqrt{1-\ln^2 x}}$;
5. $\int 9^{\frac{2}{x}} \cdot \frac{dx}{x^2}$;
6. $\int tg^2 3x dx$;
7. $\int \frac{dx}{\cos^2(3+2x)}$;
8. $\int \frac{7+3x}{25-x^2} dx$;

Bo'laklab integrallang:

9. $\int (3 - 2x)\cos 6x dx$;
10. $\int \ln(2x - 5) dx$;
11. $\int \arccos 2x dx$;
12. $\int x^2 \cdot 2^{-2x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+5}{x^2+4x+8} dx$;
14. $\int \frac{7x+11}{(x-2)(x+3)^2} dx$;
15. $\int \frac{3x-10}{(x+2)(x^2+4)} dx$;
16. $\int \frac{2x^2+12x+19}{x^2+7x+10} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 11x \cdot \cos^2 11x dx$;
18. $\int \sin x \cdot \sin 3x dx$;
19. $\int tg^5 3x dx$;
20. $\int \frac{dx}{5+3\cos x}$;
21. $\int \sin^2 10x \cdot \cos^2 10x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x}}{\sqrt{x+\sqrt[3]{x^2}}} dx$;
23. $\int \frac{(x-3)dx}{x\sqrt{x+1}}$;
24. $\int \frac{x^2}{\sqrt{1-16x^2}} dx$;
25. $\int \frac{\sqrt[3]{x^2-4} dx}{x^2}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{3-2x-x^2}}$;
27. $\int \frac{dx}{\sin^2 10x \cdot \cos^2 10x}$;
28. $\int \frac{x^4-3x^3-4x^2-3+\sqrt[5]{x^2}}{8x^3} dx$;
29. $\int e^{\sqrt{2x+1}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+1} dx$.

79-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos x dx}{\sqrt[5]{\sin^2 x}}$;
2. $\int \cos(1 + 4x) dx$;
3. $\int \frac{dx}{x \cdot (5 - \ln x)}$;
4. $\int \frac{2^{3x} dx}{\sqrt{9 + 4^{3x}}}$;
5. $\int \frac{e^{\arctg 5x} dx}{1 + 25x^2}$;
6. $\int \operatorname{tg}^2 2x dx$;
7. $\int \frac{dx}{\sin^2(4 - 7x)}$;
8. $\int \frac{3x + 5}{1 - 4x^2} dx$;

Bo'laklab integrallang:

9. $\int (4x - 5) \sin 6x dx$; 10. $\int \ln(2x + 1) dx$;
11. $\int \arccos 3x dx$; 12. $\int x^2 \cdot 4^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x - 5}{x^2 - 8x + 20} dx$;
14. $\int \frac{7x - 4}{(x + 3)(x - 2)^2} dx$;
15. $\int \frac{11x - 4}{(x - 4)(x^2 + 4)} dx$; 16. $\int \frac{3x^2 + 5x - 10}{x^2 + 2x - 8} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 4x \cdot \cos^2 4x dx$;
18. $\int \cos 2x \cdot \cos 5x dx$;
19. $\int \operatorname{ctg}^5 \frac{x}{6} dx$; 20. $\int \frac{dx}{2 - 3 \cos x}$;
21. $\int \sin^2 17x \cdot \cos^2 17x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x - \sqrt[3]{x^2}} dx$;
23. $\int \frac{(x + 1) dx}{x \cdot \sqrt{x - 3}}$;
24. $\int x^2 \sqrt{36 - x^2} dx$; 25. $\int \frac{\sqrt{x^2 - 4} dx}{\sqrt[3]{x}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(8x - 11) dx}{\sqrt{5 + 4x - x^2}}$; 27. $\int \frac{dx}{\sin^2 14x \cdot \cos^2 14x}$;
28. $\int \frac{x^7 - 5x^6 + 2 - 9x^8 + \sqrt[5]{x^{11}}}{4x^7} dx$; 29. $\int 2^{\sqrt{x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x - 1}}{e^x + 2} dx$.

80-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (3 - 2x)^{64} dx;$
2. $\int \sin(2 + 3x) dx;$
3. $\int \frac{dx}{\cos^2 x \cdot (1 + 3 \operatorname{tg} x)};$
4. $\int \frac{dx}{x \sqrt{\lg^2 x - 4}};$
5. $\int \frac{2^{\arctg 2x} dx}{1 + 4x^2};$
6. $\int \operatorname{tg}^2 \frac{x}{2} dx;$
7. $\int \frac{dx}{\sin^2(7 + 3x)};$
8. $\int \frac{5x + 4}{1 - 9x^2} dx;$

Bo'laklab integrallang:

9. $\int (3 + 2x) \sin 4x dx;$
10. $\int \ln(2x - 1) dx;$
11. $\int \arcsin 3x dx;$
12. $\int x^2 \cdot 5^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x - 1}{x^2 - 10x + 26} dx;$
14. $\int \frac{3x + 4}{(x + 1)(x + 2)^2} dx;$
15. $\int \frac{3x - 7}{(x + 1)(x^2 + 4)} dx;$
16. $\int \frac{2x^2 - 5x + 7}{x^2 - 4x + 3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 9x \cdot \cos^3 9x dx;$
18. $\int \sin 10x \cdot \cos 15x dx;$
19. $\int \operatorname{ctg}^5 2x dx;$
20. $\int \frac{dx}{4 \sin x + 5};$
21. $\int \sin^2 13x \cdot \cos^2 13x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7} + \sqrt[6]{x^5}} dx;$
23. $\int \frac{(x+1) dx}{x \cdot \sqrt{x+3}};$
24. $\int x^2 \sqrt{1 - x^2} dx;$
25. $\int x^{-1/4} \sqrt{1 - x^{2/3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3) dx}{\sqrt{6-2x-x^2}};$
27. $\int \frac{dx}{\sin^2 17x \cdot \cos^2 17x};$
28. $\int \frac{x^7 - 5x^5 - 4x^3 - 2 + \sqrt[3]{x^8}}{2x^6} dx;$
29. $\int 2^{-\sqrt{x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x + 1}}{e^x + 2} dx.$

81-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int x \cdot \sqrt[3]{x^2 + 1} dx;$
2. $\int \cos(3 - 4x) dx;$
3. $\int \frac{dx}{\arcsin 3x \cdot \sqrt{1-9x^2}};$
4. $\int \frac{x^2 dx}{1+x^2};$
5. $\int e^{tg 2x} \frac{dx}{\cos^2 2x};$
6. $\int tg^2 \frac{x}{3} dx;$
7. $\int \frac{dx}{\cos^2(5-2x)};$
8. $\int \frac{4x+2}{x^2-81} dx;$

Bo'laklab integrallang:

9. $\int (5 - 2x) \cos 4x dx;$
10. $\int \ln(1 - 2x) dx;$
11. $\int \arctg 2x dx;$
12. $\int x^2 \cdot 3^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+3}{x^2-8x+17} dx;$
14. $\int \frac{3x+2}{(x+2)(x+1)^2} dx;$
15. $\int \frac{3x+15}{(x+1)(x^2+5)} dx;$
16. $\int \frac{3x^2+2x-31}{x^2+x-6} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 6x \cdot \cos^2 6x dx;$
18. $\int \sin 5x \cdot \cos 8x dx;$
19. $\int tg^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{3+5\cos x};$
21. $\int \sin^2 7x \cdot \cos^2 7x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[6]{x})} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x+3}};$
24. $\int x^2 \sqrt{4 - x^2} dx;$
25. $\int x^5 \cdot \sqrt[3]{1 + x^4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{4-4x-x^2}};$
27. $\int \frac{dx}{\sin^2 18x \cdot \cos^2 18x};$
28. $\int \frac{x^2-3x^3-9x^4+1+\sqrt[5]{x^4}}{6x^4} dx;$
29. $\int \arctg \sqrt{x} dx;$
30. $\int \frac{e^{x \cdot \sqrt{e^x+2}}}{e^x-1} dx.$

82-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt[4]{1+\ln x}}{x} dx;$
2. $\int \sin(4x + 5) dx;$
3. $\int \frac{dx}{\arctg 5x \cdot (1+25x^2)};$
4. $\int \frac{x^3 dx}{\sqrt{1+x^8}};$
5. $\int e^{x^5} \cdot x^4 dx;$
6. $\int \operatorname{ctg}^2 \frac{x}{5} dx;$
7. $\int \frac{dx}{\sin^2(2-3x)};$
8. $\int \frac{7-2x}{81-x^2} dx;$

Bo'laklab integrallang:

9. $\int (1 - 5x) \sin 6x dx;$
10. $\int \ln(2 - 3x) dx;$
11. $\int \operatorname{arcctg} 2x dx;$
12. $\int x^2 \cdot 2^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-4}{x^2+6x+13} dx;$
14. $\int \frac{x-8}{x(x-2)^2} dx;$
15. $\int \frac{3x+1}{(x-1)(x^2+2)} dx;$
16. $\int \frac{3x^2+4x-34}{x^2+3x-10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 7x \cdot \cos^3 7x dx;$
18. $\int \cos 3x \cdot \cos 7x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{3} dx;$
20. $\int \frac{dx}{2+3\cos x};$
21. $\int \sin^2 15x \cdot \cos^2 15x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(1+\sqrt[6]{x})} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-1}};$
24. $\int \frac{x^2}{\sqrt{16-x^2}} dx;$
25. $\int x^{-3}(1+x^3)^{-2/3} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{3+2x-x^2}};$
27. $\int \frac{dx}{\sin^2 13x \cdot \cos^2 13x};$
28. $\int \frac{x-4x^2-9x^3+\sqrt[5]{x^7}-1}{5x^3} dx;$
29. $\int \operatorname{arcctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+3}}{e^x-2} dx.$

83-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{2x}}{\sqrt{9+e^{2x}}} dx;$
2. $\int \cos(5x - 1) dx;$
3. $\int \frac{dx}{(x+1) \cdot (2-\ln(x+1))};$
4. $\int \frac{x^2 dx}{\sqrt{1+x^6}};$
5. $\int e^{\frac{1}{x}} \cdot \frac{dx}{x^2};$
6. $\int \operatorname{ctg}^2 \frac{x}{2} dx;$
7. $\int \frac{dx}{\sin^2(1+4x)};$
8. $\int \frac{12x+5}{81+x^2} dx;$

Bo'laklab integrallang:

9. $\int (6x - 2) \cos 3x dx;$
10. $\int \ln(2x - 3) dx;$
11. $\int \operatorname{arcctg} 3x dx;$
12. $\int x^2 \cdot 4^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-3}{x^2-4x+8} dx;$
14. $\int \frac{5x-11}{(x-1)^2(x-2)} dx;$
15. $\int \frac{4x-10}{(x+2)(x^2+2)} dx;$
16. $\int \frac{2x^2+7x-25}{x^2+x-12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 4x \cdot \cos^3 4x dx;$
18. $\int \sin 2x \cdot \sin 4x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{3} dx;$
20. $\int \frac{dx}{5-3\cos x};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(\sqrt[3]{x}-5)} dx;$
23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x-2}};$
24. $\int x^2 \sqrt{16-x^2} dx;$
25. $\int \frac{xdx}{\sqrt[3]{1+x^5}};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(3x-6)dx}{\sqrt{10-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 21x \cdot \cos^2 21x};$
28. $\int \frac{x^3-3x^2-2x-7+\sqrt[4]{x}}{5x^2} dx;$
29. $\int 3^{\sqrt{x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+2} dx.$

84-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\operatorname{tg} 2x}{\cos^2 2x} dx;$
2. $\int \cos(4 - 3x) dx;$
3. $\int \frac{dx}{\cos^2 2x \cdot (1 + 3 \operatorname{tg} 2x)};$
4. $\int \frac{e^x dx}{1 + e^{2x}};$
5. $\int 2^{\sqrt{x}} \cdot \frac{dx}{\sqrt{x}};$
6. $\int \operatorname{tg}^2 5x dx;$
7. $\int \frac{dx}{\cos^2(5x-1)};$
8. $\int \frac{2x+7}{25x^2-1} dx;$

Bo'laklab integrallang:

9. $\int (1 - x) \cos 2x dx;$
10. $\int \ln(2 + 3x) dx;$
11. $\int \operatorname{arctg} 3x dx;$
12. $\int x^2 \cdot 5^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-5}{x^2+10x+26} dx;$
14. $\int \frac{3x+2}{x(x+1)^2} dx;$
15. $\int \frac{5x-7}{(x+3)(x^2+2)} dx;$
16. $\int \frac{2x^2+13x-5}{x^2+3x-4} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 15x \cdot \cos^2 15x dx;$
18. $\int \sin 2x \cdot \cos 4x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{3+5\sin x};$
21. $\int \sin^2 14x \cdot \cos^2 14x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(3+\sqrt{x})} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{1-x^2}} dx;$
25. $\int x^4(1 + 2x^2)^{-2/3} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x+1)dx}{\sqrt{1-8x-x^2}};$
27. $\int \frac{dx}{\sin^2 19x \cdot \cos^2 19x};$
28. $\int \frac{2x^3-x^2+7-3x+\sqrt[3]{x}}{3x^3} dx;$
29. $\int 3^{-\sqrt{x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+1} dx.$

85-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

$$1. \int \frac{x^2}{\sqrt[5]{x^3+4}} dx; \quad 2. \int \sin(5-2x) dx;$$

$$3. \int \frac{5^{3x} dx}{1-5^{3x}}; \quad 4. \int \frac{3x^3 dx}{x^8+4};$$

$$5. \int 2^{\cos 3x} \cdot \sin 3x dx; \quad 6. \int \operatorname{ctg}^2 4x dx;$$

$$7. \int \frac{dx}{\cos^2(7x+2)}; \quad 8. \int \frac{3x-8}{25x^2+1} dx;$$

Bo'laklab integrallang:

$$9. \int (2x+5)\sin 3x dx; \quad 10. \int \ln(4-5x) dx;$$

$$11. \int \arccos 5x dx; \quad 12. \int x^2 \cdot 3^{-\frac{x}{3}} dx.$$

Kasr-ratsional funksiya integralini hisoblang:

$$13. \int \frac{5x-3}{x^2+8x+20} dx; \quad 14. \int \frac{7x+11}{(x+1)^2(x-2)} dx;$$

$$15. \int \frac{4x+8}{(x-1)(x^2+3)} dx; \quad 16. \int \frac{3x^2-7x-38}{x^2-2x-8} dx.$$

Trigonometrik funksiya integralini hisoblang:

$$17. \int \sin^3 8x \cdot \cos^2 8x dx; \quad 18. \int \sin 3x \cdot \cos 10x dx;$$

$$19. \int \operatorname{ctg}^5 4x dx; \quad 20. \int \frac{dx}{3\sin x+2};$$

$$21. \int \sin^2 9x \cdot \cos^2 9x dx.$$

Irratsional funksiyaning integralini hisoblang:

$$22. \int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}+x)} dx; \quad 23. \int \frac{(x-1)dx}{x\sqrt{x+2}};$$

$$24. \int \frac{x^2}{\sqrt{4-x^2}} dx; \quad 25. \int \sqrt[3]{x} \cdot \sqrt[3]{1+\sqrt{x^3}} dx;$$

Turli usullarni qo'llab integralni hisoblang:

$$26. \int \frac{(x-6)dx}{\sqrt{1+8x-x^2}}; \quad 27. \int \frac{dx}{\sin^2 15x \cdot \cos^2 15x};$$

$$28. \int \frac{7x^4-x^6-3x-6+\sqrt[4]{x^3}}{2x^5} dx; \quad 29. \int \sin \sqrt{x} dx;$$

$$30. \int \frac{e^x \cdot \sqrt{e^x+1}}{e^x-3} dx.$$

86-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{\sin^2 x \cdot \sqrt[3]{\operatorname{ctg} x + 1}} dx;$
2. $\int \sin(7x - 4) dx;$
3. $\int \frac{dx}{\operatorname{arctg} 2x \cdot (1 + 4x^2)};$
4. $\int \frac{dx}{x \cdot \sqrt{1 + \ln^2 x}};$
5. $\int 5^{-\sqrt{x}} \cdot \frac{dx}{\sqrt{x}};$
6. $\int \operatorname{ctg}^2 6x dx;$
7. $\int \frac{dx}{\sin^2(3 - 4x)};$
8. $\int \frac{x+1}{4x^2 - 9} dx;$

Bo'laklab integrallang:

9. $\int (4x + 1) \sin 2x dx;$
10. $\int \ln(5 + 3x) dx;$
11. $\int \arcsin 5x dx;$
12. $\int x^2 \cdot 2^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+5} dx;$
14. $\int \frac{6x-10}{(x+1)(x-3)^2} dx;$
15. $\int \frac{9x+4}{(x+2)(x^2+3)} dx;$
16. $\int \frac{2x^2-7x-3}{x^2-6x+5} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 10x \cdot \cos^3 10x dx;$
18. $\int \cos x \cdot \cos 3x dx;$
19. $\int \operatorname{ctg}^5 5x dx;$
20. $\int \frac{dx}{5-3\sin x};$
21. $\int \sin^2 20x \cdot \cos^2 20x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x - \sqrt[4]{x^3}} dx;$
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+3}};$
24. $\int x^2 \sqrt{9 - x^2} dx;$
25. $\int x^{3/2} \sqrt{1 + x^{3/5}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+5)dx}{\sqrt{2+6x-x^2}};$
27. $\int \frac{dx}{\sin^2 20x \cdot \cos^2 20x};$
28. $\int \frac{x^8 - 5x^7 + 6 - 3x^6 + \sqrt[4]{x^{10}}}{2x^7} dx;$
29. $\int \cos \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x - 1}}{e^x - 3} dx.$

87-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos 2x dx}{\sqrt[3]{\sin^4 2x}}$;
2. $\int \cos(6 - 5x) dx$;
3. $\int \frac{dx}{\sin^2 5x \cdot (7 + \operatorname{ctg} 5x)}$;
4. $\int \frac{x^3 dx}{\sqrt{x^8 - 1}}$;
5. $\int 2^{\ln x} \cdot \frac{dx}{x}$;
6. $\int \operatorname{tg}^2 4x dx$;
7. $\int \frac{dx}{\cos^2(3 - 5x)}$;
8. $\int \frac{3x - 4}{x^2 - 4} dx$;

Bo'laklab integrallang:

9. $\int (3x + 1) \cos 2x dx$;
10. $\int \ln(3 - 5x) dx$;
11. $\int \arcsin 4x dx$;
12. $\int x^2 \cdot 4^{-5x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x + 2}{x^2 - 2x + 2} dx$;
14. $\int \frac{x + 8}{(x - 1)(x + 2)^2} dx$;
15. $\int \frac{5x + 18}{(x - 4)(x^2 + 3)} dx$;
16. $\int \frac{3x^2 + x - 38}{x^2 - x - 12} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 5x \cdot \cos^2 5x dx$;
18. $\int \sin x \cdot \sin 5x dx$;
19. $\int \operatorname{tg}^5 5x dx$;
20. $\int \frac{dx}{5 + 4 \sin x}$;
21. $\int \sin^2 16x \cdot \cos^2 16x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x} - \sqrt[3]{x}} dx$;
23. $\int \frac{(x - 3) dx}{x \cdot \sqrt{x + 2}}$;
24. $\int \frac{x^2}{\sqrt{9 - x^2}} dx$;
25. $\int x^3 \cdot \sqrt[4]{1 + x^4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x + 4) dx}{\sqrt{2 - 8x - x^2}}$;
27. $\int \frac{dx}{\sin^2 4x \cdot \cos^2 4x}$;
28. $\int \frac{x^3 - 5x^5 - 3x - 4 + \sqrt[3]{x^5}}{2x^4} dx$;
29. $\int \frac{\arcsin x}{\sqrt{1 + x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x - 1}}{e^x + 3} dx$.

88-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\ln(2x+1)}dx}{2x+1}$;
2. $\int \sin(5 + 2x)dx$;
3. $\int \frac{dx}{\arcsin x \cdot \sqrt{1-x^2}}$;
4. $\int \frac{x^4 dx}{\sqrt{1-x^{10}}}$;
5. $\int 3^{ctgx} \cdot \frac{dx}{\sin^2 x}$;
6. $\int tg^2 6x dx$;
7. $\int \frac{dx}{\sin^2(7x-5)}$;
8. $\int \frac{5x+3}{4-x^2} dx$;

Bo'laklab integrallang:

9. $\int (4 - 2x)\sin 3x dx$;
10. $\int \ln(2x + 5) dx$;
11. $\int \arccos 4x dx$;
12. $\int x^2 \cdot 5^{-5x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-2}{x^2-6x+10} dx$;
14. $\int \frac{5x+1}{(x+2)(x-1)^2} dx$;
15. $\int \frac{7x-26}{(x+4)(x^2+2)} dx$;
16. $\int \frac{3x^2+15x+8}{x^2+4x+3} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 8x \cdot \cos^3 8x dx$;
18. $\int \sin 4x \cdot \sin 6x dx$;
19. $\int tg^5 4x dx$;
20. $\int \frac{dx}{5-4\sin x}$;
21. $\int \sin^2 11x \cdot \cos^2 11x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x} dx}{\sqrt[3]{x^2-\sqrt{x}}}$;
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-3}}$;
24. $\int x^2 \sqrt{25-x^2} dx$;
25. $\int x^{1/3} \left(2 + x^{2/5}\right)^{1/4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3)dx}{\sqrt{5-6x-x^2}}$;
27. $\int \frac{dx}{\sin^2 5x \cdot \cos^2 5x}$;
28. $\int \frac{x^6-7x^5+4-4x^9+2\sqrt[4]{x^3}}{3x^6} dx$;
29. $\int \frac{\arccos x}{\sqrt{1+x}} dx$;
30. $\int \frac{e^{x \cdot \sqrt{e^x+1}}}{e^x-1} dx$.

89-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2 dx}{\sqrt[5]{(3+2x^3)^4}}$;
2. $\int \cos(2-7x)dx$;
3. $\int \frac{dx}{x(1-\ln x)}$;
4. $\int \frac{x^3 dx}{\sqrt{1-x^8}}$;
5. $\int \frac{4 \operatorname{arctg} 3x \cdot dx}{1+9x^2}$;
6. $\int \operatorname{ctg}^2 7x dx$;
7. $\int \frac{dx}{\cos^2(2+3x)}$;
8. $\int \frac{2x+1}{x^2-9} dx$;

Bo'laklab integrallang:

9. $\int (2-x) \sin 5x dx$;
10. $\int \ln(3-2x) dx$;
11. $\int \operatorname{arctg} 5x dx$;
12. $\int x^2 \cdot 3^{-5x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+1}{x^2+4x+5} dx$;
14. $\int \frac{3x-8}{(x-3)(x-2)^2} dx$;
15. $\int \frac{5x+13}{(x-1)(x^2+5)} dx$;
16. $\int \frac{2x^2+x-37}{x^2-x+20} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 3x \cdot \cos^3 3x dx$;
18. $\int \cos 2x \cdot \cos 3x dx$;
19. $\int \operatorname{ctg}^5 \frac{x}{6} dx$;
20. $\int \frac{dx}{4+5\cos x}$;
21. $\int \sin^2 18x \cdot \cos^2 18x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7}-\sqrt[6]{x^5}} dx$;
23. $\int \frac{(x+3)dx}{x \cdot \sqrt{x-2}}$;
24. $\int \frac{x^2}{\sqrt{25-x^2}} dx$;
25. $\int x^4 \cdot \sqrt[3]{(1+x^3)^2} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{3+8x-x^2}}$;
27. $\int \frac{dx}{\sin^2 11x \cdot \cos^2 11x}$;
28. $\int \frac{x^2-2x^4-7x^3-3+\sqrt[4]{x^3}}{5x^3} dx$;
29. $\int \sin \sqrt{x-1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x+5} dx$.

90-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \sqrt{\frac{\arcsin x}{1-x^2}} dx;$
2. $\int \sin(5 + 6x) dx;$
3. $\int \frac{dx}{\cos^2 x(2tgx+1)};$
4. $\int \frac{xdx}{\sqrt{3-x^4}};$
5. $\int \frac{5^{\ln 2x} \cdot dx}{x};$
6. $\int ctg^2 5x dx;$
7. $\int \frac{dx}{\cos^2(1-7x)};$
8. $\int \frac{7x+2}{9-x^2} dx;$

Bo'laklab integrallang:

9. $\int (3x - 4)\cos 5x dx;$
10. $\int \ln(2 + 5x) dx;$
11. $\int \operatorname{arcctg} 5x dx;$
12. $\int x^2 \cdot 5^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+1}{x^2-2x+17} dx;$
14. $\int \frac{x-13}{(x+3)(x-1)^2} dx;$
15. $\int \frac{5x+8}{(x-2)(x^2+5)} dx;$
16. $\int \frac{3x^2-x-46}{x^2-2x-15} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 3x \cdot \cos^2 3x dx ;$
18. $\int \sin 5x \cdot \sin 9x dx;$
19. $\int tg^5 \frac{x}{4} dx;$
20. $\int \frac{dx}{3\sin x + 5};$
21. $\int \sin^2 19x \cdot \cos^2 19x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[3]{x})} dx ;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+2}} ;$
24. $\int x^2 \sqrt{1-4x^2} dx;$
25. $\int x^{-2/3} \sqrt{1+x^{1/3}} dx ;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-5)dx}{\sqrt{3+6x-x^2}} ;$
27. $\int \frac{dx}{\sin^2 7x \cdot \cos^2 7x} ;$
28. $\int \frac{x^3-3x^4-5x^6+3+2\sqrt[4]{x^3}}{9x^5} dx;$
29. $\int \operatorname{arcctg} \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-5}}{e^x+2} dx.$

91-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

- | | |
|---|---|
| 1. $\int \frac{\sqrt{\arctg 3x}}{1+9x^2} dx;$ | 2. $\int \sin(8 - 3x) dx;$ |
| 3. $\int \frac{e^{2x} dx}{1+3e^{2x}};$ | 4. $\int \frac{e^x dx}{\sqrt{1-e^{2x}}};$ |
| 5. $\int 3^{\sqrt{x-1}} \cdot \frac{dx}{\sqrt{x-1}};$ | 6. $\int tg^2 \frac{x}{5} dx;$ |
| 7. $\int \frac{dx}{\cos^2(2x-1)};$ | 8. $\int \frac{3x-1}{16-x^2} dx;$ |

Bo'laklab integrallang:

9. $\int (2x - 3) \cos 3x dx;$ 10. $\int \ln(4x + 1) dx;$
 11. $\int \arcsin 7x dx;$ 12. $\int x^2 \cdot 4^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

- | | |
|--|---|
| 13. $\int \frac{3x+2}{x^2+8x+17} dx;$ | 14. $\int \frac{x+4}{(x+3)(x+2)^2} dx;$ |
| 15. $\int \frac{3x+21}{(x+2)(x^2+5)} dx;$ 16. $\int \frac{2x^2-12x+19}{x^2-7x+10} dx.$ | |

Trigonometrik funksiya integralini hisoblang:

- | | |
|--|-------------------------------------|
| 17. $\int \sin^3 2x \cdot \cos^2 2x dx;$ | 18. $\int \cos x \cdot \sin 7x dx;$ |
| 19. $\int tg^5 \frac{x}{7} dx;$ 20. $\int \frac{dx}{4+5\sin x};$ | |
| 21. $\int \sin^2 12x \cdot \cos^2 12x dx.$ | |

Irratsional funksiyaning integralini hisoblang:

- | | |
|--|--|
| 22. $\int \frac{\sqrt[3]{x}}{x(\sqrt{x}+\sqrt[3]{x})} dx;$ | 23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x+3}};$ |
| 24. $\int \frac{x^2}{\sqrt{1-4x^2}} dx;$ 25. $\int \frac{dx}{x^2(1+x^3)^{4/3}};$ | |

Turli usullarni qo'llab integralni hisoblang:

- | | |
|--|--|
| 26. $\int \frac{(x+2)dx}{\sqrt{6+4x-x^2}};$ | 27. $\int \frac{dx}{\sin^2 3x \cdot \cos^2 3x};$ |
| 28. $\int \frac{x^3-4x-7x^2-2+\sqrt[3]{x^5}}{3x^2} dx;$ 29. $\int \cos \sqrt{x-1} dx;$ | |
| 30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-5} dx.$ | |

92-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{(\arccos x)^2 \sqrt{1-x^2}}$;
2. $\int \sin(2x + 3) dx$;
3. $\int \frac{dx}{\cos^2 x (3+2tgx)}$;
4. $\int \frac{dx}{x(1+\ln^2 x)}$;
5. $\int 7^{\sqrt{x+1}} \cdot \frac{dx}{\sqrt{x+1}}$;
6. $\int ctg^2 \frac{x}{3} dx$;
7. $\int \frac{dx}{\sin^2(1-2x)}$;
8. $\int \frac{2x-5}{x^2+16} dx$;

Bo'laklab integrallang:

9. $\int (3 + 5x) \sin 2x dx$;
10. $\int \ln(4x - 1) dx$;
11. $\int \arccos 7x dx$;
12. $\int x^2 \cdot 3^{-x/2} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+3} dx$;
14. $\int \frac{3x-7}{(x-2)(x-3)^2} dx$;
15. $\int \frac{5x+14}{(x-2)(x^2+4)} dx$;
16. $\int \frac{3x^2+20x+34}{x^2+7x+12} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 5x \cdot \cos^3 5x dx$;
18. $\int \sin 3x \cdot \cos 2x dx$;
19. $\int ctg^5 \frac{x}{7} dx$;
20. $\int \frac{dx}{4-5\sin x}$;
21. $\int \sin^2 5x \cdot \cos^2 5x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x} + \sqrt[3]{x}} dx$;
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-3}}$;
24. $\int \frac{x^2}{\sqrt{1-9x^2}} dx$;
25. $\int \frac{\sqrt[3]{1+\sqrt[3]{x}} dx}{\sqrt{x}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-1)dx}{\sqrt{1-4x-x^2}}$;
27. $\int \frac{dx}{\sin^2 2x \cdot \cos^2 2x}$;
28. $\int \frac{x^5 - 3x^4 + 2 - 5x^3 + \sqrt[3]{x^2}}{8x^4} dx$;
29. $\int \sin \sqrt{x+1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+5}}{e^x-2} dx$.

93-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (\cos x + 2)^{21} \cdot \sin x dx$;
2. $\int \sin(3x - 5) dx$;
3. $\int \frac{dx}{\sin^2 3x \cdot (2 + \operatorname{ctg} 3x)}$;
4. $\int \frac{x^2 dx}{\sqrt{1-x^6}}$;
5. $\int 7^{1+\lg x} \cdot \frac{dx}{x}$;
6. $\int \operatorname{tg}^2 7x dx$;
7. $\int \frac{dx}{\sin^2(3x+5)}$;
8. $\int \frac{4x+3}{x^2+16} dx$;

Bo'laklab integrallang:

9. $\int (2 - 3x) \cos 5x dx$;
10. $\int \ln(4 - 3x) dx$;
11. $\int \operatorname{arctg} 4x dx$;
12. $\int x^2 \cdot 2^{-\frac{x}{2}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-2}{x^2-4x+5} dx$;
14. $\int \frac{3x+7}{(x+2)(x+3)^2} dx$;
15. $\int \frac{3x-15}{(x+3)(x^2+3)} dx$;
16. $\int \frac{2x^2-11x+3}{x^2-5x+4} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 7x \cdot \cos^2 7x dx$;
18. $\int \cos x \cdot \cos 5x dx$;
19. $\int \operatorname{ctg}^5 \frac{x}{4} dx$;
20. $\int \frac{dx}{3-5\sin x}$;
21. $\int \sin^2 2x \cdot \cos^2 2x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[4]{x^3+x}} dx$;
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x-3}}$;
24. $\int x^2 \sqrt{1-9x^2} dx$;
25. $\int x^{-1/3} (1 + 3x^{1/2})^{1/5} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{1-2x-x^2}}$;
27. $\int \frac{dx}{\sin^2 6x \cdot \cos^2 6x}$;
28. $\int \frac{x^5-5x^6-3x^7-5+\sqrt[3]{x^5}}{2x^6} dx$;
29. $\int \operatorname{arctg} \sqrt{x} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-5}}{e^x-3} dx$.

94-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{3x}}{\sqrt[4]{11+e^{3x}}} dx;$
2. $\int \cos(2 - 5x) dx;$
3. $\int \frac{dx}{\arcsin 2x \cdot \sqrt{1-4x^2}};$
4. $\int \frac{e^{3x} dx}{1+e^{6x}};$
5. $\int 4^{\arcsin x} \cdot \frac{dx}{\sqrt{1-x^2}};$
6. $\int tg^2 \frac{x}{4} dx;$
7. $\int \frac{dx}{\cos^2(5x+3)};$
8. $\int \frac{5x-1}{x^2+9} dx;$

Bo'laklab integrallang:

9. $\int (2 - 5x) \cos 4x dx;$
10. $\int \ln(5 - 4x) dx;$
11. $\int \arctg 7x dx;$
12. $\int x^2 \cdot 4^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+3}{x^2-10x+29} dx;$
14. $\int \frac{3x-4}{(x-1)(x-2)^2} dx;$
15. $\int \frac{8x+4}{(x-3)(x^2+5)} dx;$
16. $\int \frac{2x^2-x-13}{x^2-x-2} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 9x \cdot \cos^2 9x dx;$
18. $\int \sin 3x \cdot \sin 5x dx;$
19. $\int tg^5 \frac{x}{5} dx;$
20. $\int \frac{dx}{3-5\cos x};$
21. $\int \sin^2 4x \cdot \cos^2 4x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}-x)} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-2}};$
24. $\int x^2 \sqrt{1-25x^2} dx;$
25. $\int x^{1/2} (1-x^{1/3})^{1/4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{5-4x-x^2}};$
27. $\int \frac{dx}{\sin^2 8x \cdot \cos^2 8x};$
28. $\int \frac{x^8-4x^6+5-3x^7+\sqrt[4]{x^7}}{6x^7} dx;$
29. $\int 5^{\sqrt{x+1}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x-3} dx.$

95-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{x \cdot \sqrt[3]{5-\ln x}} dx;$
2. $\int \cos(1-3x) dx;$
3. $\int \frac{e^{5x} dx}{e^{5x}-8};$
4. $\int \frac{e^x dx}{\sqrt{9+e^{2x}}};$
5. $\int 8^{\sqrt[3]{x}} \cdot \frac{dx}{\sqrt[3]{x^2}};$
6. $\int \operatorname{ctg}^2 2x dx;$
7. $\int \frac{dx}{\cos^2(2-5x)};$
8. $\int \frac{3x+4}{x^2-25} dx;$

Bo'laklab integrallang:

9. $\int (2x+1) \sin 5x dx;$
10. $\int \ln(1-4x) dx;$
11. $\int \operatorname{arcctg} 7x dx;$
12. $\int x^2 \cdot 3^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+4}{x^2-10x+29} dx;$
14. $\int \frac{6x+10}{(x-1)(x+3)^2} dx;$
15. $\int \frac{5x-11}{(x-3)(x^2+4)} dx;$
16. $\int \frac{3x^2-13x-4}{x^2-4x-5} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 2x \cdot \cos^3 2x dx;$
18. $\int \sin 3x \cdot \cos 7x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{8} dx;$
20. $\int \frac{dx}{5-4\cos x};$
21. $\int \sin^2 3x \cdot \cos^2 3x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[3]{x^2+x}} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-5}};$
24. $\int \frac{x^2}{\sqrt{1-25x^2}} dx;$
25. $\int \frac{\sqrt[3]{1+\sqrt[4]{x}}}{\sqrt[5]{x}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{5+2x-x^2}};$
27. $\int \frac{dx}{\sin^2 12x \cdot \cos^2 12x};$
28. $\int \frac{3x-5x^3-6x^2-1+\sqrt[5]{x^3}}{11x^2} dx;$
29. $\int \frac{\operatorname{arcsin} x}{\sqrt{1-x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-3} dx.$

96-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^5 dx}{\sqrt{1+x^6}}$;
2. $\int \cos(2x - 7) dx$;
3. $\int \frac{dx}{x \cdot (5 - \ln x)}$;
4. $\int \frac{dx}{x \sqrt{\lg^2 x - 4}}$;
5. $\int e^{\operatorname{tg} 2x} \frac{dx}{\cos^2 2x}$;
6. $\int \operatorname{ctg}^2 \frac{x}{5} dx$;
7. $\int \frac{dx}{\sin^2(1+4x)}$;
8. $\int \frac{2x+7}{25x^2-1} dx$;

Bo'laklab integrallang:

9. $\int (2x + 5) \sin 3x dx$;
10. $\int \ln(5 + 3x) dx$;
11. $\int \arcsin 4x dx$;
12. $\int x^2 \cdot 5^{-5x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+1}{x^2+4x+5} dx$;
14. $\int \frac{x-13}{(x+3)(x-1)^2} dx$;
15. $\int \frac{3x+21}{(x+2)(x^2+5)} dx$;
16. $\int \frac{3x^2+20x+34}{x^2+7x+12} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 7x \cdot \cos^2 7x dx$;
18. $\int \sin 3x \cdot \sin 5x dx$;
19. $\int \operatorname{tg}^5 \frac{x}{8} dx$;
20. $\int \frac{dx}{2-3\sin x}$;
21. $\int \sin^2 10x \cdot \cos^2 10x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x - \sqrt[3]{x^2}} dx$;
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+3}}$;
24. $\int x^2 \sqrt{4-x^2} dx$;
25. $\int x^{-3} (1+x^3)^{-2/3} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(3x-6)dx}{\sqrt{10-6x-x^2}}$;
27. $\int \frac{dx}{\sin^2 19x \cdot \cos^2 19x}$;
28. $\int \frac{7x^4 - x^6 - 3x - 6 + \sqrt[4]{x^3}}{2x^5} dx$;
29. $\int \cos \sqrt{x} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x - 1}}{e^x + 3} dx$.

97-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{\sqrt[4]{7x-5}}$;
2. $\int \cos(1+4x)dx$;
3. $\int \frac{dx}{\cos^2 x \cdot (1+3tgx)}$;
4. $\int \frac{x^2 dx}{1+x^2}$;
5. $\int e^{x^5} \cdot x^4 dx$;
6. $\int ctg^2 \frac{x}{2} dx$;
7. $\int \frac{dx}{\cos^2(5x-1)}$;
8. $\int \frac{3x-8}{25x^2+1} dx$;

Bo'laklab integrallang:

9. $\int (4x+1)\sin 2x dx$;
10. $\int \ln(3-5x) dx$;
11. $\int \arccos 4x dx$;
12. $\int x^2 \cdot 3^{-5x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+1}{x^2-2x+17} dx$;
14. $\int \frac{x+4}{(x+3)(x+2)^2} dx$;
15. $\int \frac{5x+14}{(x-2)(x^2+4)} dx$;
16. $\int \frac{2x^2-11x+3}{x^2-5x+4} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 9x \cdot \cos^2 9x dx$;
18. $\int \sin 3x \cdot \cos 7x dx$;
19. $\int ctg^5 3x dx$;
20. $\int \frac{dx}{5+3\cos x}$;
21. $\int \sin^2 17x \cdot \cos^2 17x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7} + \sqrt[6]{x^5}} dx$;
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x+3}}$;
24. $\int \frac{x^2}{\sqrt{16-x^2}} dx$;
25. $\int \frac{xdx}{\sqrt[3]{1+x^5}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x+1)dx}{\sqrt{1-8x-x^2}}$;
27. $\int \frac{dx}{\sin^2 15x \cdot \cos^2 15x}$;
28. $\int \frac{x^8-5x^7+6-3x^6+\sqrt[4]{x^{10}}}{2x^7} dx$;
29. $\int \frac{\arcsin x}{\sqrt{1+x}} dx$;
30. $\int \frac{e^{x \cdot \sqrt{e^x+1}}}{e^x-1} dx$.

98-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos x dx}{5\sqrt{\sin^2 x}}$;
2. $\int \sin(2 + 3x) dx$;
3. $\int \frac{dx}{\arcsin 3x \cdot \sqrt{1-9x^2}}$;
4. $\int \frac{x^3 dx}{\sqrt{1+x^8}}$;
5. $\int e^{\frac{1}{x}} \cdot \frac{dx}{x^2}$;
6. $\int \operatorname{tg}^2 5x dx$;
7. $\int \frac{dx}{\cos^2(7x+2)}$;
8. $\int \frac{x+1}{4x^2-9} dx$;

Bo'laklab integrallang:

9. $\int (3x + 1)\cos 2x dx$;
10. $\int \ln(2x + 5) dx$;
11. $\int \operatorname{arctg} 5x dx$;
12. $\int x^2 \cdot 5^{-x/2} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+2}{x^2+8x+17} dx$;
14. $\int \frac{3x-7}{(x-2)(x-3)^2} dx$;
15. $\int \frac{3x-15}{(x+3)(x^2+3)} dx$;
16. $\int \frac{2x^2-x-13}{x^2-x-2} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 2x \cdot \cos^3 2x dx$;
18. $\int \sin 4x \cdot \cos 2x dx$;
19. $\int \operatorname{tg}^5 3x dx$;
20. $\int \frac{dx}{2-3\cos x}$;
21. $\int \sin^2 13x \cdot \cos^2 13x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[6]{x})} dx$;
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-1}}$;
24. $\int x^2 \sqrt{16-x^2} dx$;
25. $\int x^4 (1+2x^2)^{-2/3} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-6)dx}{\sqrt{1+8x-x^2}}$;
27. $\int \frac{dx}{\sin^2 20x \cdot \cos^2 20x}$;
28. $\int \frac{x^3-5x^5-3x-4+\sqrt[3]{x^5}}{2x^4} dx$;
29. $\int \frac{\arccos x}{\sqrt{1+x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x+5} dx$.

99-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (3 - 2x)^{64} dx;$
2. $\int \cos(3 - 4x) dx;$
3. $\int \frac{dx}{\arctg 5x \cdot (1 + 25x^2)};$
4. $\int \frac{x^2 dx}{\sqrt{1+x^6}};$
5. $\int 2^{\sqrt{x}} \cdot \frac{dx}{\sqrt{x}};$
6. $\int \operatorname{ctg}^2 4x dx;$
7. $\int \frac{dx}{\sin^2(3-4x)};$
8. $\int \frac{3x-4}{x^2-4} dx;$

Bo'laklab integrallang:

9. $\int (4 - 2x) \sin 3x dx;$
10. $\int \ln(3 - 2x) dx;$
11. $\int \operatorname{arcctg} 5x dx;$
12. $\int x^2 \cdot 4^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+3} dx;$
14. $\int \frac{3x+7}{(x+2)(x+3)^2} dx;$
15. $\int \frac{8x+4}{(x-3)(x^2+5)} dx;$
16. $\int \frac{3x^2-13x-4}{x^2-4x-5} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 10x \cdot \cos^2 10x dx;$
18. $\int \sin x \cdot \sin 3x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{6} dx;$
20. $\int \frac{dx}{4 \sin x + 5};$
21. $\int \sin^2 7x \cdot \cos^2 7x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x(1+\sqrt[6]{x})}} dx;$
23. $\int \frac{(x-3)dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{1-x^2}} dx;$
25. $\int \sqrt[3]{x} \cdot \sqrt[3]{1+\sqrt{x^3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+5)dx}{\sqrt{2+6x-x^2}};$
27. $\int \frac{dx}{\sin^2 4x \cdot \cos^2 4x};$
28. $\int \frac{x^6-7x^5+4-4x^9+2\sqrt[4]{x^3}}{3x^6} dx;$
29. $\int \sin \sqrt{x-1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-5}}{e^x+2} dx.$

100-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int x \cdot \sqrt[3]{x^2 + 1} dx;$
2. $\int \sin(4x + 5) dx;$
3. $\int \frac{dx}{(x+1) \cdot (2 - \ln(x+1))};$
4. $\int \frac{e^x dx}{1 + e^{2x}};$
5. $\int 2^{\cos 3x} \cdot \sin 3x dx;$
6. $\int \operatorname{ctg}^2 6x dx;$
7. $\int \frac{dx}{\cos^2(3-5x)};$
8. $\int \frac{5x+3}{4-x^2} dx;$

Bo'laklab integrallang:

9. $\int (2-x) \sin 5x dx;$
10. $\int \ln(2+5x) dx;$
11. $\int \arcsin 7x dx;$
12. $\int x^2 \cdot 3^{-x/2} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-2}{x^2-4x+5} dx;$
14. $\int \frac{3x-4}{(x-1)(x-2)^2} dx;$
15. $\int \frac{5x-11}{(x-3)(x^2+4)} dx;$
16. $\int \frac{3x^2-2x-31}{x^2-x-6} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 11x \cdot \cos^2 11x dx;$
18. $\int \cos 2x \cdot \cos 5x dx;$
19. $\int \operatorname{ctg}^5 2x dx;$
20. $\int \frac{dx}{3+5\cos x};$
21. $\int \sin^2 15x \cdot \cos^2 15x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(\sqrt[3]{x}-5)} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{4-x^2}} dx;$
25. $\int x^{3/2} \sqrt{1+x^{3/5}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{2-8x-x^2}};$
27. $\int \frac{dx}{\sin^2 5x \cdot \cos^2 5x};$
28. $\int \frac{x^2-2x^4-7x^3-3+\sqrt[4]{x^3}}{5x^3} dx;$
29. $\int \operatorname{arcctg} \sqrt{x+1} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-5} dx.$

101-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt[4]{1+\ln x}}{x} dx;$
2. $\int \cos(5x - 1) dx;$
3. $\int \frac{dx}{\cos^2 2x \cdot (1+3tg2x)};$
4. $\int \frac{3x^3 dx}{x^8+4};$
5. $\int 5^{-\sqrt{x}} \cdot \frac{dx}{\sqrt{x}};$
6. $\int tg^2 4x dx;$
7. $\int \frac{dx}{\sin^2(7x-5)};$
8. $\int \frac{2x+1}{x^2-9} dx;$

Bo'laklab integrallang:

9. $\int (3x - 4)\cos 5x dx;$
10. $\int \ln(4x + 1) dx;$
11. $\int \arccos 7x dx;$
12. $\int x^2 \cdot 2^{-\frac{x}{2}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x+3}{x^2-10x+29} dx;$
14. $\int \frac{6x+10}{(x-1)(x+3)^2} dx;$
15. $\int \frac{16x-1}{(x-5)(x^2+2)} dx;$
16. $\int \frac{2x^2+12x+19}{x^2+7x+10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 4x \cdot \cos^2 4x dx;$
18. $\int \sin 10x \cdot \cos 15x dx;$
19. $\int tg^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{2+3\cos x};$
21. $\int \sin^2 17x \cdot \cos^2 17x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt[3]{x}(3+\sqrt{x})} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x+2}};$
24. $\int x^2 \sqrt{9 - x^2} dx;$
25. $\int x^3 \cdot \sqrt[4]{1 + x^4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3)dx}{\sqrt{5-6x-x^2}};$
27. $\int \frac{dx}{\sin^2 11x \cdot \cos^2 11x};$
28. $\int \frac{x^3-3x^4-5x^6+3+2\sqrt[4]{x^3}}{9x^5} dx;$
29. $\int \cos \sqrt{x-1} dx;$
30. $\int \frac{e^{x \cdot \sqrt{e^x+5}}}{e^x-2} dx.$

102-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

$$1. \int \frac{e^{2x}}{\sqrt{9+e^{2x}}} dx; \quad 2. \int \cos(4-3x) dx;$$

$$3. \int \frac{5^{3x} dx}{1-5^{3x}}; \quad 4. \int \frac{dx}{x \cdot \sqrt{1+\ln^2 x}};$$

$$5. \int 2^{\ln x} \cdot \frac{dx}{x}; \quad 6. \int \operatorname{tg}^2 6x dx;$$

$$7. \int \frac{dx}{\cos^2(2+3x)}; \quad 8. \int \frac{7x+2}{9-x^2} dx;$$

Bo'laklab integrallang:

$$9. \int (2x-3)\cos 3x dx; \quad 10. \int \ln(4x-1) dx;$$

$$11. \int \operatorname{arctg} 4x dx; \quad 12. \int x^2 \cdot 4^{-2x} dx.$$

Kasr-ratsional funksiya integralini hisoblang:

$$13. \int \frac{3x+4}{x^2-10x+29} dx;$$

$$14. \int \frac{2x-14}{(x+1)(x-3)^2} dx;$$

$$15. \int \frac{3x-10}{(x+2)(x^2+4)} dx; \quad 16. \int \frac{3x^2+5x-10}{x^2+2x-8} dx.$$

Trigonometrik funksiya integralini hisoblang:

$$17. \int \sin^2 9x \cdot \cos^3 9x dx;$$

$$18. \int \sin 5x \cdot \cos 8x dx;$$

$$19. \int \operatorname{tg}^5 \frac{x}{3} dx; \quad 20. \int \frac{dx}{5-3\cos x};$$

$$21. \int \sin^2 14x \cdot \cos^2 14x dx.$$

Irratsional funksiyaning integralini hisoblang:

$$22. \int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}+x)} dx;$$

$$23. \int \frac{(x-2)dx}{x \cdot \sqrt{x+3}};$$

$$24. \int \frac{x^2}{\sqrt{9-x^2}} dx; \quad 25. \int x^{1/3} \left(2 + x^{2/5}\right)^{1/4} dx;$$

Turli usullarni qo'llab integralni hisoblang:

$$26. \int \frac{(x-3)dx}{\sqrt{3+8x-x^2}}; \quad 27. \int \frac{dx}{\sin^2 7x \cdot \cos^2 7x};$$

$$28. \int \frac{x^3-4x-7x^2-2+\sqrt[3]{x^5}}{3x^2} dx; \quad 29. \int \sin \sqrt{x+1} dx;$$

$$30. \int \frac{e^x \cdot \sqrt{e^x-5}}{e^x-3} dx.$$

103-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\operatorname{tg} 2x}{\cos^2 2x} dx;$
2. $\int \sin(5 - 2x) dx;$
3. $\int \frac{dx}{\operatorname{arctg} 2x \cdot (1+4x^2)};$
4. $\int \frac{x^3 dx}{\sqrt{x^8-1}};$
5. $\int 3^{\operatorname{ctg} x} \cdot \frac{dx}{\sin^2 x};$
6. $\int \operatorname{ctg}^2 7x dx;$
7. $\int \frac{dx}{\cos^2(1-7x)};$
8. $\int \frac{3x-1}{16-x^2} dx;$

Bo'laklab integrallang:

9. $\int (3 + 5x) \sin 2x dx;$
10. $\int \ln(4 - 3x) dx;$
11. $\int \operatorname{arctg} 7x dx;$
12. $\int x^2 \cdot 3^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-1}{x^2+6x+10} dx;$
14. $\int \frac{7x+11}{(x-2)(x+3)^2} dx;$
15. $\int \frac{11x-4}{(x-4)(x^2+4)} dx;$
16. $\int \frac{2x^2-5x+7}{x^2-4x+3} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 6x \cdot \cos^2 6x dx ;$
18. $\int \cos 3x \cdot \cos 7x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{3} dx;$
20. $\int \frac{dx}{3+5\sin x};$
21. $\int \sin^2 9x \cdot \cos^2 9x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{x-\sqrt[4]{x^3}} dx ;$
23. $\int \frac{(x-3)dx}{x\sqrt{x+2}} ;$
24. $\int x^2 \sqrt{25-x^2} dx;$
25. $\int x^4 \cdot \sqrt[3]{(1+x^3)^2} dx ;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-5)dx}{\sqrt{3+6x-x^2}};$
27. $\int \frac{dx}{\sin^2 3x \cdot \cos^2 3x};$
28. $\int \frac{x^5-3x^4+2-5x^3+\sqrt[3]{x^2}}{8x^4} dx;$
29. $\int \operatorname{arctg} \sqrt{x} dx;$
30. $\int \frac{e^{x \cdot \sqrt{e^x-2}}}{e^{x-3}} dx.$

104-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2}{\sqrt[5]{x^3+4}} dx;$
2. $\int \sin(7x - 4) dx;$
3. $\int \frac{dx}{\sin^2 5x \cdot (7 + \operatorname{ctg} 5x)};$
4. $\int \frac{x^4 dx}{\sqrt{1-x^{10}}};$
5. $\int \frac{4 \operatorname{arctg} 3x \cdot dx}{1+9x^2};$
6. $\int \operatorname{ctg}^2 5x dx;$
7. $\int \frac{dx}{\cos^2(2x-1)};$
8. $\int \frac{2x-5}{x^2+16} dx;$

Bo'laklab integrallang:

9. $\int (2 - 3x) \cos 5x dx;$
10. $\int \ln(5 - 4x) dx;$
11. $\int \operatorname{arctg} 7x dx;$
12. $\int x^2 \cdot e^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+5}{x^2+4x+8} dx;$
14. $\int \frac{7x-4}{(x+3)(x-2)^2} dx;$
15. $\int \frac{3x-7}{(x+1)(x^2+4)} dx;$
16. $\int \frac{3x^2+2x-31}{x^2+x-6} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 7x \cdot \cos^3 7x dx;$
18. $\int \sin 2x \cdot \sin 4x dx;$
19. $\int \operatorname{ctg}^5 \frac{x}{2} dx;$
20. $\int \frac{dx}{3 \sin x + 2};$
21. $\int \sin^2 20x \cdot \cos^2 20x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x-3}\sqrt{x}} dx;$
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-3}};$
24. $\int \frac{x^2}{\sqrt{25-x^2}} dx;$
25. $\int x^{-2/3} \sqrt{1+x^{1/3}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+2)dx}{\sqrt{6+4x-x^2}};$
27. $\int \frac{dx}{\sin^2 2x \cdot \cos^2 2x};$
28. $\int \frac{x^5 - 5x^6 - 3x^7 - 5 + \sqrt[3]{x^5}}{2x^6} dx;$
29. $\int 5^{\sqrt{x+1}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+2}}{e^x-3} dx.$

105-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{\sin^2 x \cdot \sqrt[3]{\operatorname{ctg} x + 1}} dx;$
2. $\int \cos(6 - 5x) dx;$
3. $\int \frac{dx}{\arcsin x \cdot \sqrt{1-x^2}};$
4. $\int \frac{x^3 dx}{\sqrt{1-x^8}};$
5. $\int \frac{5^{\ln 2x} \cdot dx}{x};$
6. $\int \operatorname{tg}^2 \frac{x}{5} dx;$
7. $\int \frac{dx}{\sin^2(1-2x)};$
8. $\int \frac{4x+3}{x^2+16} dx;$

Bo'laklab integrallang:

9. $\int (2 - 5x) \cos 4x dx;$
10. $\int \ln(1 - 4x) dx;$
11. $\int \arcsin 2x dx;$
12. $\int x^2 \cdot 2^{-2x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-5}{x^2-8x+20} dx;$
14. $\int \frac{3x+4}{(x+1)(x+2)^2} dx;$
15. $\int \frac{3x+15}{(x+1)(x^2+5)} dx;$
16. $\int \frac{3x^2+4x-34}{x^2+3x-10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 4x \cdot \cos^3 4x dx;$
18. $\int \sin 2x \cdot \cos 4x dx;$
19. $\int \operatorname{ctg}^5 4x dx;$
20. $\int \frac{dx}{5-3\sin x};$
21. $\int \sin^2 16x \cdot \cos^2 16x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x} dx}{\sqrt[3]{x^2-\sqrt{x}}};$
23. $\int \frac{(x+3) dx}{x \cdot \sqrt{x-2}};$
24. $\int x^2 \sqrt{1-4x^2} dx;$
25. $\int \frac{dx}{x^2(1+x^3)^{4/3}};$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-1) dx}{\sqrt{1-4x-x^2}};$
27. $\int \frac{dx}{\sin^2 6x \cdot \cos^2 6x};$
28. $\int \frac{x^8-4x^6+5-3x^7+\sqrt[4]{x^7}}{6x^7} dx;$
29. $\int \frac{\arcsin x}{\sqrt{1-x}} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-2}}{e^x+3} dx.$

106-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\cos 2x dx}{\sqrt[3]{\sin^4 2x}}$;
2. $\int \sin(5 + 2x) dx$;
3. $\int \frac{dx}{x(1-\ln x)}$;
4. $\int \frac{x dx}{\sqrt{3-x^4}}$;
5. $\int 3^{\sqrt{x-1}} \cdot \frac{dx}{\sqrt{x-1}}$;
6. $\int \operatorname{ctg}^2 \frac{x}{3} dx$;
7. $\int \frac{dx}{\sin^2(3x+5)}$;
8. $\int \frac{5x-1}{x^2+9} dx$;

Bo'laklab integrallang:

9. $\int (2x + 1) \sin 5x dx$;
10. $\int \ln(3x - 2) dx$;
11. $\int \arccos 2x dx$;
12. $\int x^2 \cdot 4^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-1}{x^2-10x+26} dx$;
14. $\int \frac{3x+2}{(x+2)(x+1)^2} dx$;
15. $\int \frac{3x+1}{(x-1)(x^2+2)} dx$;
16. $\int \frac{2x^2+7x-25}{x^2+x-12} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 15x \cdot \cos^2 15x dx$;
18. $\int \sin 3x \cdot \cos 10x dx$;
19. $\int \operatorname{ctg}^5 5x dx$;
20. $\int \frac{dx}{5+4\sin x}$;
21. $\int \sin^2 11x \cdot \cos^2 11x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x+1}}{\sqrt[6]{x^7}-\sqrt[6]{x^5}} dx$;
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x+2}}$;
24. $\int \frac{x^2}{\sqrt{1-4x^2}} dx$;
25. $\int \frac{\sqrt[3]{1+\sqrt[3]{x}} dx}{\sqrt{x}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{1-2x-x^2}}$;
27. $\int \frac{dx}{\sin^2 8x \cdot \cos^2 8x}$;
28. $\int \frac{3x-5x^3-6x^2-1+\sqrt[5]{x^3}}{11x^2} dx$;
29. $\int \cos \sqrt{x+1} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+1} dx$.

107-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\ln(2x+1)}dx}{2x+1}$;
2. $\int \cos(2 - 7x)dx$;
3. $\int \frac{dx}{\cos^2 x(2tgx+1)}$;
4. $\int \frac{e^x dx}{\sqrt{1-e^{2x}}}$;
5. $\int 7^{\sqrt{x+1}} \cdot \frac{dx}{\sqrt{x+1}}$;
6. $\int tg^2 7x dx$;
7. $\int \frac{dx}{\cos^2(5x+3)}$;
8. $\int \frac{3x+4}{x^2-25} dx$;

Bo'laklab integrallang:

9. $\int (3x + 7)\sin 4x dx$;
10. $\int \ln(2x - 5) dx$;
11. $\int \arccos 3x dx$;
12. $\int x^2 \cdot 5^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+3}{x^2-8x+17} dx$;
14. $\int \frac{x-8}{x(x-2)^2} dx$;
15. $\int \frac{4x-10}{(x+2)(x^2+2)} dx$;
16. $\int \frac{2x^2+13x-5}{x^2+3x-4} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 8x \cdot \cos^2 8x dx$;
18. $\int \cos x \cdot \cos 3x dx$;
19. $\int tg^5 5x dx$;
20. $\int \frac{dx}{5-4\sin x}$;
21. $\int \sin^2 18x \cdot \cos^2 18x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(1+\sqrt[3]{x})} dx$;
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x+3}}$;
24. $\int \frac{x^2}{\sqrt{1-9x^2}} dx$;
25. $\int x^{-1/3} \left(1 + 3x^{1/2}\right)^{1/5} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{5-4x-x^2}}$;
27. $\int \frac{dx}{\sin^2 12x \cdot \cos^2 12x}$;
28. $\int \frac{x^6-3x^5+3-6x^4+\sqrt[3]{x^5}}{2x^5} dx$;
29. $\int e^{\sqrt{2x+1}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x+2} dx$.

108-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{x^2 dx}{\sqrt[5]{(3+2x^3)^4}}$;
2. $\int \sin(5 + 6x) dx$;
3. $\int \frac{e^{2x} dx}{1+3e^{2x}}$;
4. $\int \frac{dx}{x(1+\ln^2 x)}$;
5. $\int 7^{1+\lg x} \cdot \frac{dx}{x}$;
6. $\int tg^2 \frac{x}{4} dx$;
7. $\int \frac{dx}{\cos^2(2-5x)}$;
8. $\int \frac{4x-1}{x^2+25} dx$;

Bo'laklab integrallang:

9. $\int (3 - 2x) \cos 6x dx$;
10. $\int \ln(2x + 1) dx$;
11. $\int \arcsin 3x dx$;
12. $\int x^2 \cdot 3^{-3x} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-4}{x^2+6x+13} dx$;
14. $\int \frac{5x-11}{(x-1)^2(x-2)} dx$;
15. $\int \frac{5x-7}{(x+3)(x^2+2)} dx$;
16. $\int \frac{3x^2-7x-38}{x^2-2x-8} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 10x \cdot \cos^3 10x dx$;
18. $\int \sin x \cdot \sin 5x dx$;
19. $\int tg^5 4x dx$;
20. $\int \frac{dx}{4+5\cos x}$;
21. $\int \sin^2 19x \cdot \cos^2 19x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[3]{x}}{x(\sqrt{x}+\sqrt[3]{x})} dx$;
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-3}}$;
24. $\int x^2 \sqrt{1-9x^2} dx$;
25. $\int x^{1/2} (1-x^{1/3})^{1/4} dx$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-3)dx}{\sqrt{5+2x-x^2}}$;
27. $\int \frac{dx}{\sin^2 9x \cdot \cos^2 9x}$;
28. $\int \frac{x^4-3x^3-4x^2-3+\sqrt[5]{x^2}}{8x^3} dx$;
29. $\int 2^{\sqrt{x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x+1}}{e^x+2} dx$.

109-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \sqrt{\frac{\arcsin x}{1-x^2}} dx;$

2. $\int \sin(8 - 3x) dx;$

3. $\int \frac{dx}{\cos^2 x(3+2tgx)};$

4. $\int \frac{x^2 dx}{\sqrt{1-x^6}};$

5. $\int 4^{\arcsin x} \cdot \frac{dx}{\sqrt{1-x^2}};$

6. $\int ctg^2 2x dx;$

7. $\int \frac{dx}{\sin^2(4x-3)};$

8. $\int \frac{7+3x}{25-x^2} dx;$

Bo'laklab integrallang:

9. $\int (4x - 5)\sin 6x dx;$ 10. $\int \ln(2x - 1) dx;$

11. $\int \arctg 2x dx;$ 12. $\int x^2 \cdot 2^{-3x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{4x-3}{x^2-4x+8} dx;$

14. $\int \frac{3x+2}{x(x+1)^2} dx;$

15. $\int \frac{4x+8}{(x-1)(x^2+3)} dx;$ 16. $\int \frac{2x^2-7x-3}{x^2-6x+5} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 5x \cdot \cos^2 5x dx;$

18. $\int \sin 4x \cdot \sin 6x dx;$

19. $\int ctg^5 \frac{x}{6} dx;$ 20. $\int \frac{dx}{3\sin x + 5};$

21. $\int \sin^2 12x \cdot \cos^2 12x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x} + \sqrt[3]{x}} dx;$

23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x-3}};$

24. $\int x^2 \sqrt{1 - 25x^2} dx;$ 25. $\int \frac{\sqrt[3]{1 + \sqrt[4]{x}}}{\sqrt[5]{x}} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+1)dx}{\sqrt{1-6x-x^2}};$ 27. $\int \frac{dx}{\sin^2 10x \cdot \cos^2 10x};$

28. $\int \frac{x^7 - 5x^6 + 2 - 9x^8 + \sqrt[5]{x^{11}}}{4x^7} dx;$ 29. $\int 2^{-\sqrt{x}} dx;$

30. $\int \frac{e^{x \cdot \sqrt{e^x + 2}}}{e^x - 1} dx.$

110-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{\sqrt{\operatorname{arctg} 3x}}{1+9x^2} dx;$
2. $\int \sin(2x + 3) dx;$
3. $\int \frac{dx}{\sin^2 3x \cdot (2+\operatorname{ctg} 3x)};$
4. $\int \frac{e^{3x} dx}{1+e^{6x}};$
5. $\int 8^{\sqrt[3]{x}} \cdot \frac{dx}{\sqrt[3]{x^2}};$
6. $\int \operatorname{ctg}^2 3x dx;$
7. $\int \frac{dx}{\cos^2(3+2x)};$
8. $\int \frac{3x+5}{1-4x^2} dx;$

Bo'laklab integrallang:

9. $\int (3 + 2x) \sin 4x dx;$
10. $\int \ln(1 - 2x) dx;$
11. $\int \operatorname{arcctg} 2x dx;$
12. $\int x^2 \cdot 4^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-5}{x^2+10x+26} dx;$
14. $\int \frac{7x+11}{(x+1)^2(x-2)} dx;$
15. $\int \frac{9x+4}{(x+2)(x^2+3)} dx;$
16. $\int \frac{3x^2+x-38}{x^2-x-12} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 8x \cdot \cos^3 8x dx;$
18. $\int \cos 2x \cdot \cos 3x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{4} dx;$
20. $\int \frac{dx}{4+5\sin x};$
21. $\int \sin^2 5x \cdot \cos^2 5x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[4]{x^3+x}} dx;$
23. $\int \frac{(x-1)dx}{x \cdot \sqrt{x-2}};$
24. $\int \frac{x^2}{\sqrt{1-25x^2}} dx;$
25. $\int x^{-2/3} \left(1 + x^{1/2}\right)^{1/2} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(2x-8)dx}{\sqrt{3-2x-x^2}};$
27. $\int \frac{dx}{\sin^2 14x \cdot \cos^2 14x};$
28. $\int \frac{x^7-5x^5-4x^3-2+\sqrt[3]{x^8}}{2x^6} dx;$
29. $\int \operatorname{arctg} \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x+3}}{e^x-2} dx.$

111-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{dx}{(\arccos x)^2 \sqrt{1-x^2}}$;
2. $\int \sin(3x - 5) dx$;
3. $\int \frac{dx}{\arcsin 2x \cdot \sqrt{1-4x^2}}$;
4. $\int \frac{e^x dx}{\sqrt{9+e^{2x}}}$;
5. $\int \frac{e^{\arccos 2x} dx}{\sqrt{1-4x^2}}$;
6. $\int \operatorname{tg}^2 3x dx$;
7. $\int \frac{dx}{\sin^2(4-7x)}$;
8. $\int \frac{5x+4}{1-9x^2} dx$;

Bo'laklab integrallang:

9. $\int (5 - 2x) \cos 4x dx$; 10. $\int \ln(2 - 3x) dx$;
11. $\int \operatorname{arcctg} 3x dx$; 12. $\int x^2 \cdot 5^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x-3}{x^2+8x+20} dx$;
14. $\int \frac{6x-10}{(x+1)(x-3)^2} dx$;
15. $\int \frac{5x+18}{(x-4)(x^2+3)} dx$;
16. $\int \frac{3x^2+15x+8}{x^2+4x+3} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 3x \cdot \cos^3 3x dx$;
18. $\int \sin 5x \cdot \sin 9x dx$;
19. $\int \operatorname{tg}^5 \frac{x}{7} dx$;
20. $\int \frac{dx}{4-5\sin x}$;
21. $\int \sin^2 2x \cdot \cos^2 2x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[4]{x^3}}{\sqrt{x}(\sqrt{x}-x)} dx$;
23. $\int \frac{(x+2)dx}{x \cdot \sqrt{x-5}}$;
24. $\int x^2 \sqrt{1-16x^2} dx$;
25. $\int \frac{\sqrt[3]{x^2-4} dx}{x^2}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(8x-11)dx}{\sqrt{5+4x-x^2}}$;
27. $\int \frac{dx}{\sin^2 17x \cdot \cos^2 17x}$;
28. $\int \frac{x^2-3x^3-9x^4+1+\sqrt[5]{x^4}}{6x^4} dx$;
29. $\int \operatorname{arcctg} \sqrt{x} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+2} dx$.

112-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int (\cos x + 2)^{21} \cdot \sin x dx$;
2. $\int \cos(2 - 5x) dx$;
3. $\int \frac{e^{5x} dx}{e^{5x} - 8}$;
4. $\int \frac{dx}{x(1 + \lg^2 x)}$;
5. $\int 9^{\frac{2}{x}} \cdot \frac{dx}{x^2}$;
6. $\int \operatorname{tg}^2 2x dx$;
7. $\int \frac{dx}{\sin^2(7+3x)}$;
8. $\int \frac{4x+2}{x^2-81} dx$;

Bo'laklab integrallang:

9. $\int (1 - 5x) \sin 6x dx$;
10. $\int \ln(2x - 3) dx$;
11. $\int \operatorname{arctg} 3x dx$;
12. $\int x^2 \cdot 3^{-\frac{x}{3}} dx$.

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x+1}{x^2+2x+5} dx$;
14. $\int \frac{x+8}{(x-1)(x+2)^2} dx$;
15. $\int \frac{7x-26}{(x+4)(x^2+2)} dx$;
16. $\int \frac{2x^2+x-37}{x^2-x+20} dx$.

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 3x \cdot \cos^2 3x dx$;
18. $\int \cos x \cdot \sin 7x dx$;
19. $\int \operatorname{ctg}^5 \frac{x}{7} dx$;
20. $\int \frac{dx}{3-5\sin x}$;
21. $\int \sin^2 4x \cdot \cos^2 4x dx$.

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt{x}}{\sqrt[3]{x^2+x}} dx$;
23. $\int \frac{(x-2)dx}{x \cdot \sqrt{x+1}}$;
24. $\int \frac{x^2}{\sqrt{1-16x^2}} dx$;
25. $\int \frac{\sqrt{x^2-4} dx}{\sqrt[3]{x}}$;

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+3)dx}{\sqrt{6-2x-x^2}}$;
27. $\int \frac{dx}{\sin^2 18x \cdot \cos^2 18x}$;
28. $\int \frac{x-4x^2-9x^3+\sqrt[5]{x^7}-1}{5x^3} dx$;
29. $\int 3^{\sqrt{x}} dx$;
30. $\int \frac{e^x \cdot \sqrt{e^x-3}}{e^x+1} dx$.

113-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{e^{3x}}{\sqrt[4]{11+e^{3x}}} dx;$
2. $\int \cos(1-3x) dx;$
3. $\int \frac{dx}{\arctg x \cdot (1+x^2)};$
4. $\int \frac{dx}{x\sqrt{1-\ln^2 x}};$
5. $\int \frac{e^{\arctg 5x} dx}{1+25x^2};$
6. $\int tg^2 \frac{x}{2} dx;$
7. $\int \frac{dx}{\cos^2(5-2x)};$
8. $\int \frac{7-2x}{81-x^2} dx;$

Bo'laklab integrallang:

9. $\int (6x-2)\cos 3x dx;$
10. $\int \ln(2+3x) dx;$
11. $\int \arccos 5x dx;$
12. $\int x^2 \cdot 2^{-\frac{x}{3}} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{5x+2}{x^2-2x+2} dx;$
14. $\int \frac{5x+1}{(x+2)(x-1)^2} dx;$
15. $\int \frac{5x+13}{(x-1)(x^2+5)} dx;$
16. $\int \frac{3x^2-x-46}{x^2-2x-15} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^3 2x \cdot \cos^2 2x dx;$
18. $\int \sin 3x \cdot \cos 2x dx;$
19. $\int ctg^5 \frac{x}{4} dx;$
20. $\int \frac{dx}{3-5\cos x};$
21. $\int \sin^2 3x \cdot \cos^2 3x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{1}{\sqrt{x}(4+\sqrt[3]{x})} dx;$
23. $\int \frac{(x-3)dx}{x\sqrt{x+1}};$
24. $\int x^2\sqrt{36-x^2} dx;$
25. $\int x^{-1/4}\sqrt{1-x^2/3} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x-2)dx}{\sqrt{4-4x-x^2}};$
27. $\int \frac{dx}{\sin^2 13x \cdot \cos^2 13x};$
28. $\int \frac{x^3-3x^2-2x-7+\sqrt[4]{x}}{5x^2} dx;$
29. $\int 3^{-\sqrt{x}} dx;$
30. $\int \frac{e^{x\sqrt{e^x+1}}}{e^x-3} dx.$

114-variant

O'rniga qo'yish usulini qo'llab integralni hisoblang:

1. $\int \frac{1}{x \cdot \sqrt[3]{5-\ln x}} dx;$
2. $\int \sin(2-4x) dx;$
3. $\int \frac{2^{9x} dx}{9-2^{9x}};$
4. $\int \frac{2^{3x} dx}{\sqrt{9+4^{3x}}};$
5. $\int \frac{2^{\arctan 2x} dx}{1+4x^2};$
6. $\int \operatorname{tg}^2 \frac{x}{3} dx;$
7. $\int \frac{dx}{\sin^2(2-3x)};$
8. $\int \frac{12x+5}{81+x^2} dx;$

Bo'laklab integrallang:

9. $\int (1-x) \cos 2x dx;$
10. $\int \ln(4-5x) dx;$
11. $\int \arcsin 5x dx;$
12. $\int x^2 \cdot 4^{-5x} dx.$

Kasr-ratsional funksiya integralini hisoblang:

13. $\int \frac{3x-2}{x^2-6x+10} dx;$
14. $\int \frac{3x-8}{(x-3)(x-2)^2} dx;$
15. $\int \frac{5x+8}{(x-2)(x^2+5)} dx;$
16. $\int \frac{2x^2-12x+19}{x^2-7x+10} dx.$

Trigonometrik funksiya integralini hisoblang:

17. $\int \sin^2 5x \cdot \cos^3 5x dx;$
18. $\int \cos x \cdot \cos 5x dx;$
19. $\int \operatorname{tg}^5 \frac{x}{5} dx;$
20. $\int \frac{dx}{5-4\cos x};$
21. $\int \sin^2 6x \cdot \cos^2 6x dx.$

Irratsional funksiyaning integralini hisoblang:

22. $\int \frac{\sqrt[6]{x}}{\sqrt{x+\sqrt[3]{x^2}}} dx;$
23. $\int \frac{(x+1)dx}{x \cdot \sqrt{x-3}};$
24. $\int x^2 \sqrt{1-x^2} dx;$
25. $\int x^5 \cdot \sqrt[3]{1+x^4} dx;$

Turli usullarni qo'llab integralni hisoblang:

26. $\int \frac{(x+4)dx}{\sqrt{3+2x-x^2}};$
27. $\int \frac{dx}{\sin^2 21x \cdot \cos^2 21x};$
28. $\int \frac{2x^3-x^2+7-3x+\sqrt[3]{x}}{3x^3} dx;$
29. $\int \sin \sqrt{x} dx;$
30. $\int \frac{e^x \cdot \sqrt{e^x-1}}{e^x-3} dx.$

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