Trigonometrijos formulės

$\sin^2 x+\cos^2 x=1$; $\sin 2x=2\sin x\cos x$; $\cos 2x=\cos^2 x-\sin^2 x$;

$\sin^2 x=\dfrac{1-\cos 2x}{2}$; $\cos^2 x=\dfrac{1+\cos 2x}{2}$; $1+\mathrm{tg}^2 x=\dfrac{1}{\cos^2 x}$; $1+\mathrm{ctg}^2 x=\dfrac{1}{\sin^2 x}$;

$\sin\alpha\cdot\sin\beta=\frac{1}{2}(\cos(\alpha-\beta)-\cos(\alpha+\beta))$; $\cos\alpha\cdot\cos\beta=\frac{1}{2}(\cos(\alpha+\beta)+\cos(\alpha-\beta))$; $\sin\alpha\cdot\cos\beta=\frac{1}{2}(\sin(\alpha+\beta)+\sin(\alpha-\beta))$.

$\sin(-x)=-\sin x$; $\cos(-x)=\cos x$; $\mathrm{tg}\,(-x)=-\mathrm{tg}\,x$; $\mathrm{ctg}\,(-x)=-\mathrm{ctg}\,x$; $\mathrm{arctg}(-x)=-\mathrm{arctg}\,x$;

$\mathrm{arctg}\,0=0$; $\mathrm{arctg}\,1=\dfrac{\pi}{4}$; $\mathrm{arctg}\dfrac{\sqrt{3}}{3}=\dfrac{\pi}{6}$; $\mathrm{arctg}\sqrt{3}=\dfrac{\pi}{3}$; $\mathrm{arctg}\,(\infty)=\dfrac{\pi}{2}$; $\mathrm{arctg}\,(-\infty)=-\dfrac{\pi}{2}$.

α	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	π	$\frac{3}{2}\pi$	2π
$\sin\alpha$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	0	–1	0
$\cos\alpha$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	–1	0	1
$\mathrm{tg}\,\alpha$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	–	0	–	0
$\mathrm{ctg}\,\alpha$	–	$\sqrt{3}$	1	$\frac{\sqrt{3}}{3}$	0	–	0	–

Išvestinių formulės

1. $(u^\alpha)'=\alpha u^{\alpha-1}\cdot u'$. **2.** $(a^u)'=a^u\ln a\cdot u'$; **3.** $(e^u)'=e^u\cdot u'$; **4.** $(\log_a u)'=\dfrac{1}{u\ln a}\cdot u'$;

5. $(\ln u)'=\dfrac{1}{u}\cdot u'$; **6.** $(\sin u)'=\cos u\cdot u'$; **7.** $(\cos u)'=-\sin u\cdot u'$; **8.** $(\mathrm{tg}\,u)'=\dfrac{1}{\cos^2 u}\cdot u'$; **9.** $(\mathrm{ctg}\,u)'=-\dfrac{1}{\sin^2 u}\cdot u'$;

10. $(\arcsin u)'=\dfrac{1}{\sqrt{1-u^2}}\cdot u'$; **11.** $(\arccos u)'=-\dfrac{1}{\sqrt{1-u^2}}\cdot u'$; **12.** $(\mathrm{arctg}\,u)'=\dfrac{1}{1+u^2}\cdot u'$; **13.** $(\mathrm{arcctg}\,u)'=-\dfrac{1}{1+u^2}\cdot u'$.

Neapibrėžtinių integralų formulės

1. $\int du=u+C$; **2.** $\int u^\alpha du=\dfrac{u^{\alpha+1}}{\alpha+1}+C$, $\alpha\neq-1$; **3.** $\int\dfrac{du}{u}=\ln|u|+C$; **4.** $\int e^u du=e^u+C$;

5. $\int a^u du=\dfrac{a^u}{\ln a}+C$; **6.** $\int\sin u\,du=-\cos u+C$; **7.** $\int\cos u\,du=\sin u+C$; **8.** $\int\dfrac{du}{\cos^2 u}=\mathrm{tg}\,u+C$;

9. $\int\dfrac{du}{\sin^2 u}=-\mathrm{ctg}\,u+C$; **10.** $\int\dfrac{du}{\sqrt{1-u^2}}=\arcsin u+C$; **11.** $\int\dfrac{du}{1+u^2}=\mathrm{arctg}\,u+C$; **12.** $\int\dfrac{du}{a^2+u^2}=\dfrac{1}{a}\mathrm{arctg}\dfrac{u}{a}+C$;

13. $\int\dfrac{du}{a^2-u^2}=\dfrac{1}{2a}\ln\left|\dfrac{a+u}{a-u}\right|+C$; **14.** $\int\dfrac{du}{u^2-a^2}=\dfrac{1}{2a}\ln\left|\dfrac{u-a}{u+a}\right|+C$;

15. $\int\dfrac{du}{\sqrt{a^2-u^2}}=\arcsin\dfrac{u}{a}+C$; **16.** $\int\dfrac{du}{\sqrt{a^2+u^2}}=\ln\left|u+\sqrt{a^2+u^2}\right|+C$;

17. $\int\dfrac{du}{\sqrt{u^2-a^2}}=\ln\left|u+\sqrt{u^2-a^2}\right|+C$; **18.** $\int\sqrt{a^2-u^2}\,du=\dfrac{u}{2}\sqrt{a^2-u^2}+\dfrac{a^2}{2}\arcsin\dfrac{u}{a}+C$;

19. $\int\sqrt{a^2+u^2}\,du=\dfrac{u}{2}\sqrt{a^2+u^2}+\dfrac{a^2}{2}\ln\left|u+\sqrt{a^2+u^2}\right|+C$; **20.** $\int\sqrt{u^2-a^2}\,du=\dfrac{u}{2}\sqrt{u^2-a^2}-\dfrac{a^2}{2}\ln\left|u+\sqrt{u^2-a^2}\right|+C$.

Trigonometriniai keitiniai

$\mathbf{tg}\dfrac{\boldsymbol{x}}{\mathbf{2}}=\boldsymbol{t}$, $dx=\dfrac{2dt}{1+t^2}$, $\sin x=\dfrac{2t}{1+t^2}$, $\cos x=\dfrac{1-t^2}{1+t^2}$;

$\mathbf{tg}\,\boldsymbol{x}=\boldsymbol{t}$, $dx=\dfrac{dt}{1+t^2}$, $\sin x=\dfrac{t}{\sqrt{1+t^2}}$, $\cos x=\dfrac{1}{\sqrt{1+t^2}}$.

$$\int_0^{\frac{\pi}{2}}\sin^n x dx=\int_0^{\frac{\pi}{2}}\cos^n x dx=\begin{cases}\dfrac{(n-1)!!}{n!!}, & \text{kai}\quad n=2m+1\quad (n-\text{nelyginis sk.})\\[2mm] \dfrac{(n-1)!!}{n!!}\cdot\dfrac{\pi}{2}, & \text{kai}\quad n=2m\quad (n-\text{lyginis sk.})\end{cases}\qquad (n,m)\in N.$$