

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

$$1 + \operatorname{tg}^2 \alpha = \frac{1}{\cos^2 \alpha}$$

$$1 + \operatorname{ctg}^2 \alpha = \frac{1}{\sin^2 \alpha}$$

$$\sin(-\alpha) = -\sin \alpha$$

$$\cos(-\alpha) = \cos \alpha$$

$$\operatorname{tg}(-\alpha) = -\operatorname{tg} \alpha$$

$$\operatorname{ctg}(-\alpha) = -\operatorname{ctg} \alpha$$

$$\sin(\pi \pm \alpha) = \mp \sin \alpha$$

$$\cos(\pi \pm \alpha) = -\cos \alpha$$

$$\operatorname{tg}(k\pi \pm \alpha) = \pm \operatorname{tg} \alpha$$

$$\operatorname{ctg}(k\pi \pm \alpha) = \pm \operatorname{ctg} \alpha$$

$$\sin\left(\frac{\pi}{2} \pm \alpha\right) = \cos \alpha$$

$$\cos\left(\frac{\pi}{2} \pm \alpha\right) = \pm \sin \alpha$$

$$\operatorname{tg}\left(\frac{\pi}{2} \pm \alpha\right) = \mp \operatorname{ctg} \alpha$$

$$\operatorname{ctg}\left(\frac{\pi}{2} \pm \alpha\right) = \mp \operatorname{tg} \alpha$$

$$\sin(k2\pi \pm \alpha) = \pm \sin \alpha$$

$$\cos(k2\pi \pm \alpha) = \cos \alpha$$

$$\sin(\alpha \pm \beta) = \sin \alpha \cos \beta \pm \cos \alpha \sin \beta$$

$$\cos(\alpha \pm \beta) = \cos \alpha \cos \beta \mp \sin \alpha \sin \beta$$

$$\operatorname{tg}(\alpha \pm \beta) = \frac{\operatorname{tg} \alpha \pm \operatorname{tg} \beta}{1 \mp \operatorname{tg} \alpha \operatorname{tg} \beta}$$

$$\operatorname{ctg}(\alpha \pm \beta) = \frac{\operatorname{ctg} \alpha \operatorname{ctg} \beta \mp 1}{\operatorname{ctg} \beta \pm \operatorname{ctg} \alpha}$$

$$\sin \alpha \pm \sin \beta = 2 \sin \frac{\alpha \pm \beta}{2} \cos \frac{\alpha \mp \beta}{2}$$

$$\cos \alpha + \cos \beta = 2 \cos \frac{\alpha + \beta}{2} \cos \frac{\alpha - \beta}{2}$$

$$\cos \alpha - \cos \beta = -2 \sin \frac{\alpha + \beta}{2} \sin \frac{\alpha - \beta}{2}$$

$$\operatorname{tg} \alpha \pm \operatorname{tg} \beta = \frac{\sin(\alpha \pm \beta)}{\cos \alpha \cos \beta}$$

$$\operatorname{ctg} \alpha \pm \operatorname{ctg} \beta = \frac{\sin(\alpha \pm \beta)}{\sin \alpha \sin \beta}$$

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

$$\cos \alpha \cos \beta = \frac{1}{2} (\cos(\alpha + \beta) + \cos(\alpha - \beta))$$

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

$$\sin 2\alpha = 2 \sin \alpha \cos \alpha$$

$$\cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha$$

$$\operatorname{tg} 2\alpha = \frac{2 \operatorname{tg} \alpha}{1 - \operatorname{tg}^2 \alpha}$$

$$\operatorname{ctg} 2\alpha = \frac{\operatorname{ctg}^2 \alpha - 1}{2 \operatorname{ctg} \alpha}$$

$$\sin \frac{\alpha}{2} = \pm \sqrt{\frac{1 - \cos \alpha}{2}}$$

$$\cos \frac{\alpha}{2} = \pm \sqrt{\frac{1 + \cos \alpha}{2}}$$

$$\operatorname{tg} \frac{\alpha}{2} = \frac{1 - \cos \alpha}{\sin \alpha} = \pm \sqrt{\frac{1 - \cos \alpha}{1 + \cos \alpha}}$$

$$\operatorname{ctg} \frac{\alpha}{2} = \frac{1 + \cos \alpha}{\sin \alpha} = \frac{\sin \alpha}{1 - \cos \alpha} = \pm \sqrt{\frac{1 + \cos \alpha}{1 - \cos \alpha}}$$

/rd/	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$
/°/	0	30	45	60	90	180	270
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	0	-1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	-1	0
tg	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	∞	0	∞
ctg	∞	$\sqrt{3}$	1	$\frac{\sqrt{3}}{3}$	0	∞	0

$$(kx + n)' = k$$

$$(C)' = 0$$

$$(C \cdot f)'(x) = C \cdot f'(x)$$

$$\left(\sum_{i=1}^n f_i \right)'(x) = \sum_{i=1}^n f_i'(x)$$

$$(x^n)' = n \cdot x^{n-1}; n \in \mathbb{R}$$

$$(a^x)' = a^x \cdot \ln a; a > 0$$

$$(a^x)^{(n)} = a^x \cdot \ln^n a; a > 0$$

$$(e^x)' = e^x$$

$$x = e^{\ln x}$$

$$(\ln x)' = \frac{1}{x}$$

$$(\ln x)^{(n)} = \frac{(n-1)!}{x^n}$$

$$(\sin x)' = \cos x$$

$$(\cos x)' = -\sin x$$

$$(\operatorname{tg} x)' = \frac{1}{\cos^2 x}$$

$$(\operatorname{ctg} x)' = -\frac{1}{\sin^2 x}$$

$$(\arcsin x)' = \frac{1}{\sqrt{1-x^2}}$$

$$(\arccos x)' = -\frac{1}{\sqrt{1-x^2}}$$

$$(f \pm g)'(x) = f'(x) \pm g'(x)$$

$$(f \cdot g)'(x) = f'(x) \cdot g(x) + f(x) \cdot g'(x)$$

$$\left(\frac{f}{g} \right)'(x) = \frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{[g(x)]^2}; g(x) \neq 0$$

T: f in g sta odvedljivi funkciji.

$$(g \circ f)'(x) = g'(f(x)) \cdot f'(x)$$

$$\frac{dy}{dx} = \frac{dy}{du} \cdot \frac{du}{dx}; u = g(x), y = f(u)$$

T: f je odvedljiva in bijektivna. Potem je f^{-1} tudi odvedljiva in

$$\text{velja: } (f^{-1})'(x) = \frac{1}{f'(f^{-1}(x))}$$

$$\text{DIFERENCIAL: } dy = f'(x_0) dx$$

P: (DRUGI OSNOVNI IZREK INTEGRALSKEGA

RAČUNA): Če je $G'(x) = f(x)$, je

$$\int_a^b f(x) dx = G(x) \Big|_a^b = G(b) - G(a)$$

$$\int_a^b u dv = uv \Big|_a^b - \int_a^b v du$$

T: Če je $\varphi: [a, b] \rightarrow [a, b]$ monotona odvedljiva funkcija in f zvezna, potem velja

$$\int_a^b f(x) dx = \int_a^b f(\varphi(t)) \varphi'(t) dt, \text{ če}$$

je $\varphi(a) = a$ in $\varphi(b) = b$.

$$\int (f \pm g) dx = \int f dx \pm \int g$$

$$\int C \cdot f dx = C \cdot \int f dx$$

$$\int u dv = uv - \int v du \quad \text{P}$$

$$\int \frac{dx}{x} = \ln |x| + C$$

$$\int \frac{f'}{f} dx = \ln |f| + C$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + C; n \neq -1$$

$$\int a^x dx = \frac{a^x}{\ln a} + C$$

$$\int a^{kx} dx = \frac{a^{kx}}{k \cdot \ln a} + C$$

$$\int e^x dx = e^x + C$$

$$\int e^{kx} dx = \frac{1}{k} e^{kx} + C$$

$$\int \sin x dx = -\cos x + C$$

$$\int \cos x dx = \sin x + C$$

$$\int \operatorname{sh} x dx = \operatorname{ch} x + C$$

$$\int \operatorname{ch} x dx = \operatorname{sh} x + C$$

$$\int \frac{dx}{\sin^2 x} = -\operatorname{ctg} x + C$$

$$\int \frac{dx}{\cos^2 x} = \operatorname{tg} x + C$$

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

$$\int \frac{dx}{1+x^2} = \operatorname{arctg} x + C$$

$$\int \frac{dx}{\sqrt{a^2-x^2}} = \arcsin \frac{x}{a} + C$$

$$\int \frac{dx}{a^2+x^2} = \frac{1}{a} \operatorname{arctg} \frac{x}{a} + C$$

$$\int \frac{dx}{\sqrt{x^2+k}} = \ln \left| x + \sqrt{x^2+k} \right| + C$$

$$\int \frac{p^{(n)}(x)}{\sqrt{ax^2+bx+c}} dx = q^{(n-1)}(x) \sqrt{ax^2+bx+c} + A$$

$$\int \frac{Ax+B}{(x^2+px+q)^n} dx = \frac{T^{(2n-3)}(x)}{(x^2+px+q)^{n+1}} + \int \frac{Cx+D}{x^2+px+q}$$

$$\int \frac{S^{(m)}(x)}{(x-k)^n \sqrt{ax^2+bx+c}}, m < n : x-k = \frac{1}{t}$$

$$t = \operatorname{tg} \frac{x}{2} \quad \sin x = \frac{2t}{1+t^2} \quad \cos x = \frac{1-t^2}{1+t^2} \quad dx = \frac{2dt}{1+t^2}$$

$$\int_a^b (f(x) \pm g(x)) dx = \int_a^b f(x) dx \pm \int_a^b g(x) dx$$

$$\int_a^b C \cdot f(x) dx = C \cdot \int_a^b f(x) dx$$

$$\int_a^b f(x) dx = \int_a^c f(x) dx + \int_c^b f(x) dx \quad a < c < b$$

$$\int_a^b f(x) dx = -\int_b^a f(x) dx$$

$$\int_a^a f(x) dx = 0$$