

### Vrijednosti sinusa i kosinusa

|                |   |                      |                      |                      |                 |
|----------------|---|----------------------|----------------------|----------------------|-----------------|
| $\varphi$      | 0 | $\frac{\pi}{6}$      | $\frac{\pi}{4}$      | $\frac{\pi}{3}$      | $\frac{\pi}{2}$ |
| $\sin \varphi$ | 0 | $\frac{1}{2}$        | $\frac{\sqrt{2}}{2}$ | $\frac{\sqrt{3}}{2}$ | 1               |
| $\cos \varphi$ | 1 | $\frac{\sqrt{3}}{2}$ | $\frac{\sqrt{2}}{2}$ | $\frac{1}{2}$        | 0               |

### Adicijski teoremi

$$\sin(x \pm y) = \sin x \cos y \pm \cos x \sin y$$

$$\cos(x \pm y) = \cos x \cos y \mp \sin x \sin y$$

$$\operatorname{tg}(x \pm y) = \frac{\operatorname{tg} x \pm \operatorname{tg} y}{1 \mp \operatorname{tg} x \operatorname{tg} y}$$

$$\operatorname{ctg}(x \pm y) = \frac{\operatorname{ctg} x \operatorname{ctg} y \mp 1}{\operatorname{ctg} y \pm \operatorname{ctg} x}$$

### Funkcije višestrukih argumenata

$$\sin 2x = 2 \sin x \cos x$$

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

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

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

### Formule pretvorbe

$$\sin x \cos y = \frac{1}{2}(\sin(x+y) + \sin(x-y))$$

$$\cos x \cos y = \frac{1}{2}(\cos(x+y) + \cos(x-y))$$

$$\sin x \sin y = \frac{1}{2}(\cos(x-y) - \cos(x+y))$$

$$\sin x + \sin y = 2 \sin \frac{x+y}{2} \cos \frac{x-y}{2}$$

$$\sin x - \sin y = 2 \cos \frac{x+y}{2} \sin \frac{x-y}{2}$$

$$\cos x + \cos y = 2 \cos \frac{x+y}{2} \cos \frac{x-y}{2}$$

$$\cos x - \cos y = -2 \sin \frac{x+y}{2} \sin \frac{x-y}{2}$$

### Funkcije polovičnih argumenata

$$\sin^2 \frac{x}{2} = \frac{1 - \cos x}{2}$$

$$\cos^2 \frac{x}{2} = \frac{1 + \cos x}{2}$$

### Neke važne formule

$$\sin^2 x = \frac{\operatorname{tg}^2 x}{1 + \operatorname{tg}^2 x}$$

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

$$\sin x = \frac{2 \operatorname{tg} \frac{x}{2}}{1 + \operatorname{tg}^2 \frac{x}{2}}$$

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

### Tablica derivacija

| $f(x)$                    | $f'(x)$                   | $f(x)$                  | $f'(x)$                            |
|---------------------------|---------------------------|-------------------------|------------------------------------|
| $x^a$                     | $ax^{a-1}$                | $\ln x$                 | $\frac{1}{x}$                      |
| $\sin x$                  | $\cos x$                  | $\log_a x$              | $\frac{1}{x \ln a}$                |
| $\cos x$                  | $-\sin x$                 | $\operatorname{sh} x$   | $\operatorname{ch} x$              |
| $\operatorname{tg} x$     | $\frac{1}{\cos^2 x}$      | $\operatorname{ch} x$   | $\operatorname{sh} x$              |
| $\operatorname{ctg} x$    | $-\frac{1}{\sin^2 x}$     | $\operatorname{th} x$   | $\frac{1}{\operatorname{ch}^2 x}$  |
| $\arcsin x$               | $\frac{1}{\sqrt{1-x^2}}$  | $\operatorname{cth} x$  | $-\frac{1}{\operatorname{sh}^2 x}$ |
| $\arccos x$               | $-\frac{1}{\sqrt{1-x^2}}$ | $\operatorname{arsh} x$ | $\frac{1}{\sqrt{1+x^2}}$           |
| $\operatorname{arctg} x$  | $\frac{1}{1+x^2}$         | $\operatorname{arch} x$ | $\frac{1}{\sqrt{x^2-1}}$           |
| $\operatorname{arcctg} x$ | $-\frac{1}{1+x^2}$        | $\operatorname{arth} x$ | $\frac{1}{1-x^2}$                  |
| $e^x$                     | $e^x$                     | $\operatorname{arch} x$ | $\frac{1}{1-x^2}$                  |
| $a^x$                     | $a^x \ln a$               |                         |                                    |

### Tablica integrala

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

$$\int x^\alpha dx = \frac{x^{\alpha+1}}{\alpha+1} + C, \alpha \in \mathbf{R} \setminus \{-1\}$$

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

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

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

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

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

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

$$\int \frac{dx}{x^2+a^2} = \frac{1}{a} \operatorname{arctg}\left(\frac{x}{a}\right) + C, a > 0$$

$$\int \frac{dx}{x^2-a^2} = \frac{1}{2a} \ln \left| \frac{x-a}{x+a} \right| + C, a > 0$$

$$\int \frac{dx}{\sqrt{a^2-x^2}} = \arcsin\left(\frac{x}{a}\right) + C, a > 0$$

$$\int \frac{dx}{\sqrt{x^2+A}} = \ln |x + \sqrt{x^2+A}| + C, A \neq 0$$

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

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

$$\int \frac{dx}{\operatorname{sh}^2 x} = -\operatorname{cth} x + C$$

$$\int \frac{dx}{\operatorname{ch}^2 x} = \operatorname{th} x + C$$