# Trigonometrija

1. Riješite jednadžbe
   (a) $\sin x = \frac{\sqrt{3}}{2}$
   (b) $\cos x = -\frac{\sqrt{3}}{2}$
   (c) $\operatorname{tg} x = -\sqrt{3}$
   (d) $\operatorname{ctg} x = \sqrt{3}$
   (e) $\sin(x+1) = \frac{\sqrt{3}}{2}$
   (f) $\cos(2x) = -\frac{\sqrt{3}}{2}$
   (g) $\operatorname{tg}(2x+1) = -\sqrt{3}$
   (h) $\sin x \cos x = 1$
   (i) $\sin^2 x = \cos^2 x$
   (j) $\sin 2x = \cos x$
   (k) $\sin 2x + 2\cos^2 x = 0$
   (l) $\frac{1}{\cos^2 x} + 2\operatorname{tg} x = 0$
   (m) $\log_{\sqrt{2}\sin x}(1+\cos x) = 2$
2. Riješite nejednadžbe
   (a) $|\sin x| \leq \frac{1}{2}$
   (b) $|\operatorname{ctg} x| \geq \frac{1}{\sqrt{3}}$
   (c) $\cos^2 x < \frac{1}{2}$
   (d) $\cos^2 x - \frac{\sqrt{3}-1}{2}\sin x + \frac{\sqrt{3}-4}{4} > 0$
   (e) $|\operatorname{tg}(2x - \frac{\pi}{12})| \geq \frac{1}{\sqrt{3}}$
   (f) $\left(\operatorname{tg}\frac{\pi}{8}\right)^x - \left(\operatorname{tg}\frac{\pi}{8}\right)^{-x} < 3$
   (g) $\frac{5}{4}\sin^2 x + \frac{1}{4}\sin^2(2x) > \cos(2x)$
   (h) $2\cos(2x) + \sin(2x) > \operatorname{tg} x$
3. Odredite prirodne domene funkcija
   (a) $f(x) = \ln\left(\sin\frac{\pi}{x}\right)$
   (b) $f(x) = \log(1 - 2\cos x)$
   (c) $f(x) = \sqrt{\frac{1}{\cos\sqrt{x}}}$
   (d) $f(x) = \arccos\left(\log_{\frac{1}{2}}\frac{2+x}{1+x}\right)$
   (e) $f(x) = \arccos\left(\operatorname{arctg}\frac{1}{x}\right)$
   (f) $f(x) = \log\left(\operatorname{tg}\frac{\pi}{x}\right)$
   (g) $f(x) = \arccos\left(\operatorname{tg}\frac{x+1}{x}\right)$