

3.6 Goniometrické výrazy

$$\operatorname{tg} x = \frac{\sin x}{\cos x}$$

$$\operatorname{cotg} x = \frac{\cos x}{\sin x}$$

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

$$\operatorname{tg} x \cdot \operatorname{cotg} x = 1$$

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

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

Př.: Zjednoduř výrazy pro přípustné hodnoty proměnných

- | | | |
|----|---|-----------------------------------|
| a) | $\frac{\sin 2x}{4 \cos x}$ | $\left[\frac{\sin x}{2}\right]$ |
| b) | $(\cos x - \sin x)^2 + (\cos x + \sin x)^2$ | $[2]$ |
| c) | $\sin^2 x + \operatorname{tg}^2 x + \cos^2 x$ | $\left[\frac{1}{\cos^2 x}\right]$ |
| d) | $\frac{1 + \operatorname{tg}^2 x}{1 + \operatorname{cotg}^2 x}$ | $[\operatorname{tg}^2 x]$ |
| e) | $\frac{\cos^2 x}{1 + \sin x}$ | $[1 - \sin x]$ |
| f) | $\frac{\cos^2 x}{1 - \sin x}$ | $[1 + \sin x]$ |
| g) | $1 - \sin^2 x + \operatorname{cotg}^2 x \cdot \sin^2 x$ | $[2 \cos^2 x]$ |
| h) | $\frac{\sin x - \sin^3 x}{\cos x - \cos^3 x}$ | $[\operatorname{cotg} x]$ |
| i) | $\frac{1 + \cos 2x}{1 - \cos 2x}$ | $[\operatorname{cotg}^2 x]$ |
| j) | $\frac{1 - \operatorname{tg}^2 x}{\cos 2x}$ | $\left[\frac{1}{\cos^2 x}\right]$ |
| k) | $\cos 2x + \sin 2x \cdot \operatorname{tg} x$ | $[1]$ |
| l) | $\frac{\cos^3 x - \cos x}{\sin^3 x - \sin x}$ | $[\operatorname{tg} x]$ |
| m) | $\frac{\operatorname{tg} x \cdot \cos^2 x}{1 - \cos^2 x}$ | $[\operatorname{cotg} x]$ |
| n) | $\frac{\sin 2x}{\cos^2 x}$ | $[2 \operatorname{tg} x]$ |
| o) | $\frac{\sin 2x}{1 - \cos 2x}$ | $[\operatorname{cotg} x]$ |