

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ
GONIOMETRICKÉ FUNKCE - ŘEŠENÍ

Řešení:

$$b: y = \sin^2 x - \cos^2 x = -(\cos^2 x - \sin^2 x) = -\cos 2x$$

$$c: y = \sin^2 x + \cos^2 x = 1$$

$$d: y = \operatorname{tg}\left(x + \frac{\pi}{2}\right) = \operatorname{cotg}\left(\frac{\pi}{2} - x - \frac{\pi}{2}\right) = \operatorname{cotg}(-x) = -\operatorname{cotg} x$$

$$e: y = \operatorname{cotg}\left(x + \frac{\pi}{2}\right) = \operatorname{tg}\left(\frac{\pi}{2} - x - \frac{\pi}{2}\right) = \operatorname{tg}(-x) = -\operatorname{tg} x$$

$$f: y = (1 - \cos x) \cdot (1 + \cos x) = 1 - \cos^2 x = \sin^2 x$$

$$g: y = \sin x \cdot \cos x^2 + \sin^3 x = \sin x \cdot (\cos^2 x + \sin^2 x) = \sin x$$

$$h: y = (\cos x - \sin x)^2 + (\cos x + \sin x)^2 = \\ = \cos^2 x - 2 \cdot \sin x \cdot \cos x + \sin^2 x + \cos^2 x + 2 \cdot \sin x \cdot \cos x + \sin^2 x = 2$$

$$i: y = \sin\left(x - \frac{\pi}{6}\right) + \sin\left(\frac{7}{6}\pi + x\right) = \sin x \cdot \cos \frac{\pi}{6} - \cos x \cdot \sin \frac{\pi}{6} + \sin \frac{7\pi}{6} \cdot \cos x + \cos \frac{7\pi}{6} \cdot \sin x = \\ = \frac{\sqrt{3}}{2} \cdot \sin x - \frac{1}{2} \cdot \cos x - \frac{1}{2} \cdot \cos x - \frac{\sqrt{3}}{2} \cdot \sin x = -\cos x$$

$$j: y = \left(\sin \frac{x}{2} + \cos \frac{x}{2}\right)^2 = \sin^2 \frac{x}{2} + 2 \cdot \sin \frac{x}{2} \cdot \cos \frac{x}{2} + \cos^2 \frac{x}{2} = 1 + \sin 2 \frac{x}{2} = 1 + \sin x$$

Správně vyplněná tabulka:

a	b	c	d	e	f	g	h	i	j
H	J	A	E	C	G	F	D	I	B