

Str. 35. Naloge:

3.b) $tgx = 1$

4e) $tg3x = -1,5$

5.a) $tg(x + \frac{\pi}{2}) = 1$

6 a) $tg^2 x = 2tgx$

č) $tgx = -1$

e) $tg(4x - \frac{\pi}{6}) = \sqrt{3}$

e) $tgx = tg^3 x$

e) $tgx = 0$

Razlaga:

Opomba: Glej tudi že rešeno nalogo, str. 30 naloga 15a (graf funkcije tangens)

Rešiti moramo enačbo v obliki $tg x = a$, kjer za a ni omejitve..

Grafično rešitev dobim v presečišču

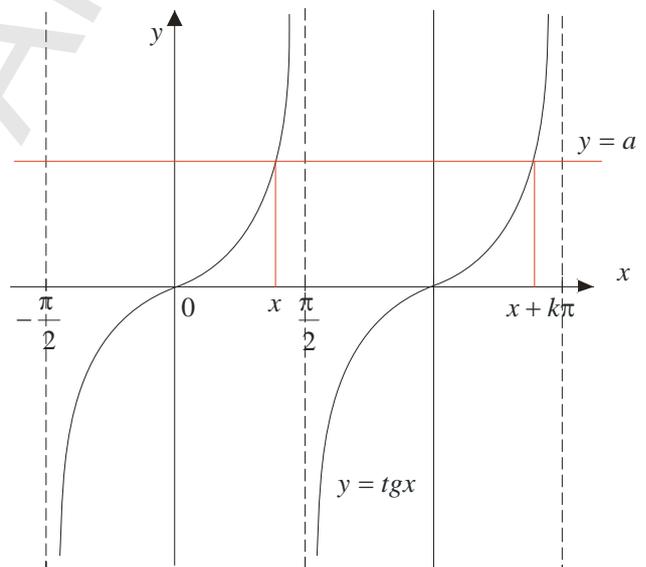
grafa funkcije $f(x) = tgx$ in

premice $y = a$

$$tgx = a$$

$$x = \arctg a + k\pi$$

$$k \in \mathbb{Z} \quad \mathbb{Z} = \{0, \pm 1, \pm 2, \dots\}$$



Rešitve	
<p>3.b) $tgx = 1$</p> $x = \arctg 1 + k\pi, \quad k \in \mathbb{Z}$ $\underline{x = \frac{\pi}{4} + k\pi}$	<p>3.č) $tgx = -1$</p> $x = \arctg(-1) + k\pi$ $x = -\frac{\pi}{4} + k\pi, \quad k \in \mathbb{Z}$
<p>3 e) $tgx = 0$</p> $x = \arctg 0 + k\pi$ $x = 0 + k\pi$ $\underline{x = k\pi}, \quad k \in \mathbb{Z}$	<p>4.e) $tg 3x = -1,5$</p> $3x = \arctg(-1,5) + k\pi$ $x = \frac{1}{3} \arctg(-1,5) + k\pi$ $\underline{x = -18^\circ 46' + k \cdot 180^\circ}, \quad k \in \mathbb{Z}$
<p>5.a) $tg(x + \frac{\pi}{2}) = 1$</p> $x + \frac{\pi}{2} = \arctg 1 + k\pi, \quad k \in \mathbb{Z}$ $x + \frac{\pi}{2} = \frac{\pi}{4} + k\pi / .4$ $4x + 2\pi = \pi + 4k\pi$ $4x = -\pi + 4k\pi$ $\underline{x = -\frac{\pi}{4} + k\pi}, \quad k \in \mathbb{Z}$	<p>5.e) $tg(4x - \frac{\pi}{6}) = \sqrt{3}$</p> $4x - \frac{\pi}{6} = \arctg \sqrt{3} + k\pi$ $4x - \frac{\pi}{6} = \frac{\pi}{3} + k\pi / .6$ $24x - \pi = 2\pi + 6k\pi$ $24x = 3\pi + 6k\pi$ $8x = \pi + 2k\pi$ $\underline{x = \frac{\pi}{8} + \frac{k\pi}{4}}, \quad k \in \mathbb{Z}$
<p>6 a) $tg^2 x = 2tgx$</p> $tg^2 x - 2tgx = 0$ $tgx(tgx - 2) = 0$ $tgx = 0$ $x = \arctg 0 + k\pi$ $\underline{x_1 = 0 + k\pi}, \quad k \in \mathbb{Z}$	$tgx - 2 = 0$ $tgx = 2$ $x = \arctg 2 + k\pi$ $\underline{x_2 = 63^\circ 26' + k \cdot 180^\circ}, \quad k \in \mathbb{Z}$

6.e) $tgx = tg^3 x$

$$tgx - tg^3 x = 0$$

$$tgx(1 - tg^2 x) = 0$$

$$tgx = 0$$

glej 6 a)

$$1 - tg^2 x = 0$$

$$(1 - tgx)(1 + tgx) = 0$$

$$1 - tgx = 0$$

$$tgx = 1$$

glej 3.b)

$$1 + tgx = 0$$

glej 3.č)

SATCITANANDA