

Rješenja 2. domaće zadaće iz Matematike 1

1. $y = 4(x + 1)^2 - 2$, nultočke: $x_1 = -\sqrt{2}/2 - 1, x_2 = \sqrt{2}/2 - 1$
2. $y = 2\sin(\frac{\pi}{4}x + \frac{\pi}{2}), P = 8$
3. $y = 3\sin(\frac{\pi}{4}x - \frac{\pi}{4})$
4. $y = 2(x - 1)^2 + 1, y = 2x^2 - 1, y = -2x^2 - 1$
5. $y = \frac{1}{x+2}, y = \frac{1}{x+2} + 1, y = \frac{1}{-x+2} + 1$
6. a) $x \in \langle -\infty, -5 \rangle \cup [-2, +\infty)$, b) $x \in [-3, 2] \cup [4, +\infty)$, c) $x \in [-2, +\infty)$
7. a) $x \in \langle -\infty, 0 \rangle \cup [3, +\infty) \setminus \{-1, 4\}$,
b) $x \in \langle -\infty, -1 \rangle \cup \langle 1, +\infty \rangle \setminus \{\pm\sqrt{2}\}$,
c) $x \in \langle -2, 1 \rangle \cup \langle 3, +\infty \rangle$
8. a) $x \in [-2, 3] \cup \langle 9, +\infty \rangle$, b) $x \in \langle 0, \frac{1}{e^2} \rangle \cup [\frac{1}{e}, e] \cup \langle e^2, +\infty \rangle$
9. a) $x \in [\frac{\pi}{18} + \frac{2k\pi}{3}, \frac{5\pi}{18} + \frac{2k\pi}{3}]$, b) $x \in [\frac{\pi}{16} + \frac{k\pi}{4}, \frac{\pi}{8} + \frac{k\pi}{4}]$, $k \in \mathbb{Z}$
10. a) $x \in \langle -\infty, -3 \rangle \cup [-1, +\infty)$, b) $x \in [-1, 0]$
11. a) $Im(f) = [-1, 5]$, ne postoji inverz jer funkcija nije injekcija,
b) $Im(f) = \langle -\infty, 0 \rangle$, nije bijekcija, ne postoji inverz
12. a) $x \in \langle -1, 1 \rangle$, b) neparna fja., c) $f^{-1}(x) = \sqrt[3]{\frac{e^x - 1}{e^x + 1}}$
13. $D(f) = \mathbb{R} \setminus \{0\}, Im(f) = \langle -\infty, -1 \rangle \cup \langle 1, +\infty \rangle$
14. $D(f) = \langle 0, +\infty \rangle \setminus \{e\}, Im(f) = \mathbb{R} \setminus \{1\}$

15. $D(f) = [2, +\infty)$, $Im(f) = \langle 0, \frac{\pi}{2} \rangle$

16. raspis lijeve i desne strane

17. $x = \frac{1}{2} - \frac{\sqrt{3}}{2}$

18. raspis desne strane

19. $x = \sqrt{2}$

20. $x = 1$