

**UPUTSTVO ZA OCJENJIVANJE**
**MATURSKI/STRUČNI ISPIT – MATEMATIKA (OSNOVNI NIVO)**

19. 05. 2022. GODINA

**Rješenja zadataka višestrukog izbora**

Redni broj zadatka	Tačan odgovor
1.	C
2.	D
3.	B
4.	C
5.	A
6.	C
7.	D
8.	B

**9.**

$$90 = 2 \cdot 3^2 \cdot 5, \quad 396 = 2^2 \cdot 3^2 \cdot 11 \quad \dots\dots\dots 1 \text{ bod}$$

$$NZS(90, 396) = 2^2 \cdot 3^2 \cdot 5 \cdot 11 = 1980 \quad \dots\dots\dots 1 \text{ bod}$$

$$NZD(90, 396) = 2 \cdot 3^2 = 18 \quad \dots\dots\dots 1 \text{ bod}$$

**10.**

$$\frac{1}{x+1} - \frac{3}{x^3+1} + \frac{3}{x^2-x+1} = \frac{x^2-x+1-3+3(x+1)}{(x+1)(x^2-x+1)} \quad \dots\dots\dots 1 \text{ bod}$$

$$x - \frac{2x-1}{x+1} = \frac{x^2-x+1}{x+1} \quad \dots\dots\dots 1 \text{ bod}$$

$$\frac{x^2+2x+1}{(x+1)(x^2-x+1)} \cdot \frac{x^2-x+1}{x+1} = \frac{(x+1)^2}{(x+1)^2} = 1 \quad \dots\dots\dots 1 \text{ bod}$$

**11.**

$$(a+b)^2 = a^2 + 2ab + b^2 = 16 \quad \dots\dots\dots 1 \text{ bod}$$

$$a^2 + b^2 = 16 - 2ab = 6 \quad \dots\dots\dots 1 \text{ bod}$$

**12.**

$$\begin{cases} y = 56x + 1 \\ y = 55x + 7 \end{cases} \Leftrightarrow \begin{cases} y = 56x + 1 \\ 56x + 1 = 55x + 7 \end{cases} \dots\dots\dots 1 \text{ bod}$$

$$\begin{cases} y = 56x + 1 \\ x = 6 \end{cases} \Leftrightarrow \begin{cases} x = 6 \\ y = 337 \end{cases} \dots\dots\dots 1 \text{ bod}$$

$$6 \cdot 337 = 2022 \dots\dots\dots 1 \text{ bod}$$

**13.**

$$(4^x)^2 + 5 \cdot 4^x - 6 = 0, 4^x = t, t > 0 \dots\dots\dots 1 \text{ bod}$$

$$t^2 + 5t - 6 = 0, t_1 = -6 \text{ i } t_2 = 1 \dots\dots\dots 1 \text{ bod}$$

$$\text{Kako je } t > 0, 4^x = 1 \Rightarrow x = 0 \dots\dots\dots 1 \text{ bod}$$

**14.**

$$x = 0 \Rightarrow y = 2 + \log_4 4 = 3, B(0,3) \dots\dots\dots 1 \text{ bod}$$

$$y = 0 \Rightarrow 2 + \log_4(4 - x) = 0 \Rightarrow \log_4(4 - x) = -2 \dots\dots\dots 1 \text{ bod}$$

$$4 - x = 4^{-2} \Rightarrow x = \frac{63}{16}, A\left(\frac{63}{16}, 0\right) \dots\dots\dots 1 \text{ bod}$$

**15.**

$$\text{tg}^2 x = \frac{1}{3} \Rightarrow \text{tg} x = -\frac{\sqrt{3}}{3} \vee \text{tg} x = \frac{\sqrt{3}}{3} \dots\dots\dots 1 \text{ bod}$$

$$x \in \left\{ -\frac{\pi}{6} + k\pi \mid k \in Z \right\} \dots\dots\dots 1 \text{ bod}$$

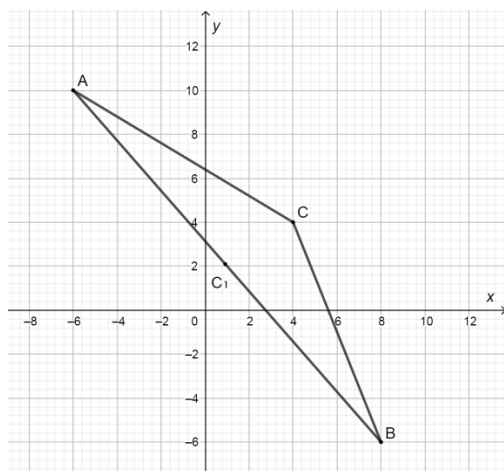
$$x \in \left\{ \frac{\pi}{6} + k\pi \mid k \in Z \right\} \dots\dots\dots 1 \text{ bod}$$

**16.**

$$x - 3y + 4 = 0 \Rightarrow k_1 = \frac{1}{3}, 2x - y + 8 = 0 \Rightarrow k_2 = 2 \dots\dots\dots 1 \text{ bod}$$

$$\text{tg} \varphi = \left| \frac{k_2 - k_1}{1 + k_1 k_2} \right| = 1 \Rightarrow \varphi = \frac{\pi}{4} \dots\dots\dots 1 \text{ bod}$$

17.



$$C_1\left(\frac{-6+8}{2}, \frac{10-6}{2}\right), C_1(1, 2) \dots\dots\dots 1 \text{ bod}$$

$$d(C, C_1) = \sqrt{13} \dots\dots\dots 1 \text{ bod}$$

18.

$$P_k = 6a_k^2 \Rightarrow a = 4 \text{ cm}, \quad V_k = a_k^3 = 64 \text{ cm}^3 \dots\dots\dots 1 \text{ bod}$$

$$V_k = V_p \dots\dots\dots 1 \text{ bod}$$

$$64 \text{ cm}^3 = \frac{1}{3} a_p^2 \cdot H \Rightarrow a_p^2 = \frac{64 \text{ cm}^3 \cdot 3}{3 \text{ cm}} \Rightarrow a_p = 8 \text{ cm} \dots\dots\dots 1 \text{ bod}$$

$$h_p = \sqrt{H^2 + \frac{a_p^2}{4}} = \sqrt{9+16} = 5 \dots\dots\dots 1 \text{ bod}$$

$$P_p - P_k = \left(8^2 + 4 \frac{8 \cdot 5}{2}\right) - 96 = 48 \text{ cm}^2 \dots\dots\dots 1 \text{ bod}$$

19.

$$\text{Jednačina tražene kružnice } x^2 + y^2 = r^2 \dots\dots\dots 1 \text{ bod}$$

$$\text{Prava AB: } y - 2 = \frac{3-2}{2-1}(x-1) \Rightarrow y = x + 1 \dots\dots\dots 1 \text{ bod}$$

$$\text{Uslov dodira: } r^2(k^2 + 1) = n^2 \Rightarrow 2r^2 = 1 \Rightarrow x^2 + y^2 = \frac{1}{2} \dots\dots\dots 1 \text{ bod}$$

**20.**

$$f'(x) = -6x^2 - 16x \dots\dots\dots 1 \text{ bod}$$

$$-6x^2 - 16x = 10 \Leftrightarrow 6x^2 + 16x + 10 = 0 \dots\dots\dots 1 \text{ bod}$$

$$x_{1,2} = \frac{-16 \pm \sqrt{256 - 240}}{12} = \begin{cases} -\frac{5}{3} \\ -1 \end{cases} \dots\dots\dots 1 \text{ bod}$$