

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

25. 05. 2023. GODINA

Rješenja zadataka višestrukog izbora

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

9.

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

$$x^3 + 3x^2y + 3xy^2 + y^3 - x^3 + xy^2 - y^3 = 3x^2y + 4xy^2 \dots\dots\dots 1 \text{ bod}$$

$$3x^2y + 4xy^2 = xy(3x + 4y) \dots\dots\dots 1 \text{ bod}$$

10.

$$x_1 = x + 25\%x = 1,25x, \quad y_1 = y - 25\%y = 0,75y \dots\dots\dots 1 \text{ bod}$$

$$x_1 = y_1 \Rightarrow 1,25x = 0,75y \Rightarrow \frac{y}{x} = \frac{125}{75} = \frac{5}{3} \dots\dots\dots 1 \text{ bod}$$

11.

a) $z_1 = -1 + 2i, \quad \bar{z}_2 = 1 - i \Rightarrow z_2 = 1 + i \dots\dots\dots 1 \text{ bod}$

b) $z_1 \cdot z_2 = -3 + i \dots\dots\dots 1 \text{ bod}$

$$|z_1 \cdot z_2| = \sqrt{(-3)^2 + 1} = \sqrt{10} \dots\dots\dots 1 \text{ bod}$$

12.

$$mx^2 + (1-m)x - (m+2) = 0$$

$$x_1 \cdot x_2 = \frac{c}{a} \Rightarrow x_1 \cdot x_2 = \frac{-m-2}{m} \dots\dots\dots 1 \text{ bod}$$

$$\frac{-m-2}{m} = 1 \Rightarrow -m-2 = m \Rightarrow m = -1 \dots\dots\dots 1 \text{ bod}$$

13.

$$\text{Upisano } y = -x^2 \dots\dots\dots 1 \text{ bod}$$

$$\text{Upisano } y = (x-10)^2 + 20 \dots\dots\dots 1 \text{ bod}$$

14.

$$2 \cdot 5^{x-1} \cdot (5^2 - 15) = 500 \dots\dots\dots 1 \text{ bod}$$

$$5^{x-1} = 25 \dots\dots\dots 1 \text{ bod}$$

$$x = 3 \dots\dots\dots 1 \text{ bod}$$

15.

$$(\log_4 3)^{-1} = \log_3 4 \dots\dots\dots 1 \text{ bod}$$

$$\log_3 0,8 = \log_3 4 - \log_3 5 \dots\dots\dots 1 \text{ bod}$$

$$\log_9 \frac{81}{25} = 2 - \log_3 5 \dots\dots\dots 1 \text{ bod}$$

$$2^{\frac{1}{2}} = \sqrt{2} \dots\dots\dots 1 \text{ bod}$$

16.

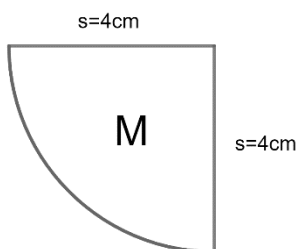
$$\sin(3x) \cdot \cos x = 0 \Leftrightarrow \sin(3x) = 0 \vee \cos x = 0 \dots\dots\dots 1 \text{ bod}$$

$$\sin(3x) = 0 \Rightarrow 3x = k\pi, k \in Z \Rightarrow x = \frac{k\pi}{3}, k \in Z \dots\dots\dots 1 \text{ bod}$$

$$\cos x = 0 \Rightarrow x = \frac{\pi}{2} + k\pi, k \in Z \dots\dots\dots 1 \text{ bod}$$

$$\text{Rješenja koja pripadaju traženom segmentu su: } 0, \frac{\pi}{3}, \frac{2\pi}{3}, \pi, \frac{\pi}{2} \dots\dots\dots 1 \text{ bod}$$

17.



Zaključeno da je izvodnica kupe $s = 4\text{cm}$ 1 bod

$$\frac{1}{4}s^2\pi = rs\pi \Rightarrow r = 1\text{cm} \dots\dots\dots 1 \text{ bod}$$

$$H = \sqrt{15}\text{cm} \dots\dots\dots 1 \text{ bod}$$

$$V = \frac{1}{3}r^2\pi H \Rightarrow V = \frac{\sqrt{15}}{3}\pi\text{cm}^3 \dots\dots\dots 1 \text{ bod}$$

18.

$$C(x, y)$$

$$|AC| = |BC| \Rightarrow \sqrt{(x-7)^2 + (y+1)^2} = \sqrt{(x-1)^2 + (y+3)^2} \dots\dots\dots 1 \text{ bod}$$

$$\text{Dobijena jednačina } -3x - y + 10 = 0 \dots\dots\dots 1 \text{ bod}$$

$$\text{Postavljen sistem jednačina } \begin{cases} -3x - y = -10 \\ 2x + y = 5 \end{cases} \dots\dots\dots 1 \text{ bod}$$

$$C(5, -5) \dots\dots\dots 1 \text{ bod}$$

19.

$$t: y = kx + n$$

$$\text{Iz jednačine hiperbole dobijeno: } a^2 = 15 \text{ i } b^2 = 6 \dots\dots\dots 1 \text{ bod}$$

$$\text{Iz uslova paralelnosti dobijen koeficijent pravca tangente: } k = -1 \dots\dots\dots 1 \text{ bod}$$

$$\text{Iz uslova dodira prave i hiperbole, } a^2k^2 - b^2 = n^2 \text{ dobijeno da je } n = \pm 3 \dots\dots\dots 1 \text{ bod}$$

$$\text{Jednačine traženih tangenti: } y = -x - 3 \text{ i } y = -x + 3 \dots\dots\dots 1 \text{ bod}$$

20.

a) Tri 1 bod

b) Rastuća je za $x \in (0,1) \cup (2,3)$ 1 bod

c) Kodomen je $[-2,2]$ 1 bod