



UPUTSTVO ZA OCJENJIVANJE
MATURSKI/STRUČNI ISPIT – MATEMATIKA (OSNOVNI NIVO)
24. 05. 2024. GODINA

Rješenja zadataka višestrukog izbora

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

9.

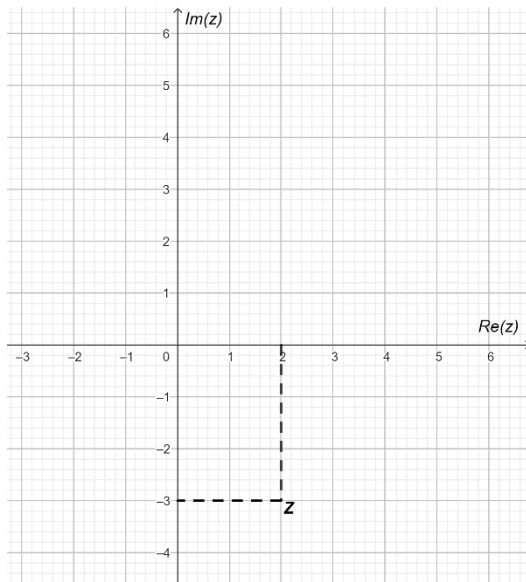
$$2x^2 + 12x + 18 = 2(x+3)^2 \text{ ili } 2x^2 - 18 = 2(x+3)(x-3) \dots\dots\dots 1 \text{ bod}$$

$$\frac{2x^2 + 12x + 18}{2x^2 - 18} = \frac{2(x+3)^2}{2(x-3)(x+3)} = \frac{x+3}{x-3} \dots\dots\dots 1 \text{ bod}$$

10.

$$z = \frac{3+2i}{i} \cdot \frac{i}{i} \dots\dots\dots 1 \text{ bod}$$

$$z = 2 - 3i \dots\dots\dots 1 \text{ bod}$$



..... 1 bod

11.

$$\begin{cases} 2x^2 + 2y^2 + 3y - 2 = 0 \\ -2x + y + 2 = 0 \end{cases}$$

$$2x^2 + 2(2x - 2)^2 + 3(2x - 2) - 2 = 0 \dots\dots\dots 1 \text{ bod}$$

$$2x^2 + 8x^2 - 16x + 8 + 6x - 8 = 0 \Rightarrow 10x^2 - 10x = 0 \dots\dots\dots 1 \text{ bod}$$

$$10x^2 - 10x = 0 \Rightarrow x(x - 1) = 0 \Rightarrow x = 0 \vee x = 1 \dots\dots\dots 1 \text{ bod}$$

$$(0, -2), (1, 0) \dots\dots\dots 1 \text{ bod}$$

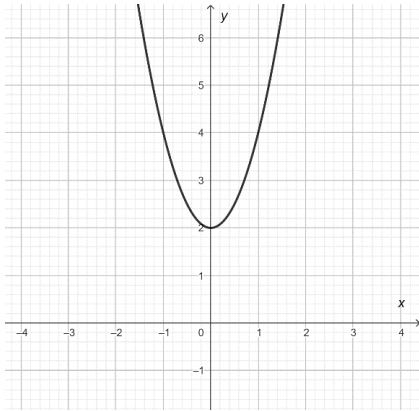
12.

$$a = 2k, \quad b = 1 - k, \quad c = 3 - k$$

$$T(\alpha, \beta), \alpha = -\frac{b}{2a} = 0 \dots\dots\dots 1 \text{ bod}$$

$$1 - k = 0 \Rightarrow k = 1$$

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



13.

$\log \frac{200}{2} + 98 = 10^x$ 1 bod

$100 = 10^x$ 1 bod

$x = 2$ 1 bod

14.

$\sin 4\alpha = 2 \sin 2\alpha \cos 2\alpha$ 1 bod

$\cos^4 \alpha - \sin^4 \alpha = (\cos^2 \alpha - \sin^2 \alpha)(\cos^2 \alpha + \sin^2 \alpha) = \cos^2 \alpha - \sin^2 \alpha$ 1 bod

$$\frac{\sin 4\alpha}{\cos^4 \alpha - \sin^4 \alpha} = \frac{2 \sin 2\alpha (\cos^2 \alpha - \sin^2 \alpha)}{(\cos^2 \alpha - \sin^2 \alpha)(\cos^2 \alpha + \sin^2 \alpha)} = \frac{2 \sin 2\alpha}{\cos^2 \alpha + \sin^2 \alpha} = 4 \sin \alpha \cos \alpha$$

..... 1 bod

15.

$p: k = \operatorname{tg} 45^\circ = 1, (-3, 0) \in p$

$y - 0 = 1 \cdot (x + 3) \Rightarrow y = x + 3$ 1 bod

$q: k = \operatorname{tg} 135^\circ = -1, (-3, 0) \in q$

$y - 0 = -1 \cdot (x + 3) \Rightarrow y = -x - 3$ 1 bod

16.

$V_{kocke} = (4 \text{ cm})^3 = 64 \text{ cm}^3$ 1 bod

Ivice kvadra: $a : b : c = 1 : 2 : 4 \Rightarrow a = k, b = 2k, c = 4k$ 1 bod

$V_{kocke} = V_{kvadra} = 64 \text{ cm}^3 \Rightarrow 8k^3 = 64 \Rightarrow k^3 = 8 \Rightarrow k = 2$ 1 bod

$P_{kvadra} - P_{kocke} = 2(2 \cdot 4 + 2 \cdot 8 + 4 \cdot 8) - 6 \cdot 16 = 16 \text{ cm}^2$ 1 bod

17.

Presjek dijagonala je tačka $O(-1,3)$ koja je središte duži AC odnosno BD ... 1 bod

$$k_{AC} = \frac{6-0}{-2-0} = -3 \dots\dots\dots 1 \text{ bod}$$

$$k_{BD} = k_{BO} = \frac{2-3}{-\frac{3}{2}+1} = 2 \dots\dots\dots 1 \text{ bod}$$

$$\operatorname{tg} \varphi = \left| \frac{-3-2}{1-6} \right| = 1 \dots\dots\dots 1 \text{ bod}$$

$$\varphi = 45^\circ \dots\dots\dots 1 \text{ bod}$$

18.

$$x - 2y - 5 = 0 \Rightarrow y = \frac{1}{2}x - \frac{5}{2} \Rightarrow k = \frac{1}{2}, n = -\frac{5}{2} \dots\dots\dots 1 \text{ bod}$$

$$\text{Uslov dodira: } r^2(k^2 + 1) = n^2$$

$$r^2(k^2 + 1) = n^2 \Rightarrow r^2 \left(\left(\frac{1}{2} \right)^2 + 1 \right) = \left(-\frac{5}{2} \right)^2 \Rightarrow r^2 = 5 \dots\dots\dots 1 \text{ bod}$$

$$x^2 + y^2 = r^2 \Rightarrow x^2 + y^2 = 5 \dots\dots\dots 1 \text{ bod}$$

19.

$$a_1 = 5p, a_2 = 20, a_3 = 3p$$

$$a_3 - a_2 = a_2 - a_1 \dots\dots\dots 1 \text{ bod}$$

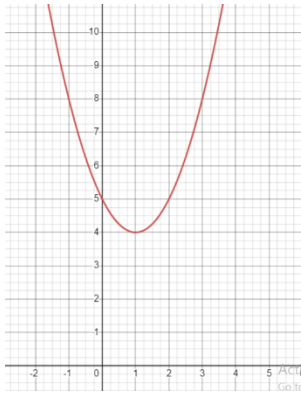
$$3p - 20 = 20 - 5p \Rightarrow 8p = 40 \Rightarrow p = 5 \dots\dots\dots 1 \text{ bod}$$

$$a_1 = 25, a_2 = 20, a_3 = 15$$

$$d = -5 \dots\dots\dots 1 \text{ bod}$$

20.

$$f'(x) = 3x^2 - 6x + 15 \dots\dots\dots 1 \text{ bod}$$



..... 1 bod

$f'(x) > 0$ za $x \in \mathbb{R} \Rightarrow f(x)$ je rastuća za svako $x \in \mathbb{R}$ 1 bod