

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

AVGUST 2022. GODINA

Rješenja zadataka višestrukog izbora

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

9.

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

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

10.

$$z = (1 - 2i)^2 = 1 - 4i + 4i^2 = -3 - 4i \dots\dots\dots 1 \text{ bod}$$

$$\operatorname{Re}(z) = -3, \operatorname{Im}(z) = -4 \dots\dots\dots 1 \text{ bod}$$

11.
 x – početna cijena

 x_1 – cijena umanjena za 20% u odnosu na početnu

$$x_1 = x - \frac{20}{100}x = 0,8x \dots\dots\dots 1 \text{ bod}$$

 x_2 – cijena povećana za 50% u odnosu na cijenu x_1

$$x_2 = x_1 + \frac{50}{100}x_1 = 1,5x_1 = 1,5 \cdot 0,8x = 1,2x \dots\dots\dots 1 \text{ bod}$$

Početna cijena je povećana za 20% 1 bod

12.

$$2^{-10} = 2^{\frac{10x-6}{3}} \cdot 2^{-18} \dots\dots\dots 1 \text{ bod}$$

$$2^{-10} = 2^{\frac{10x-6}{3}-18} \dots\dots\dots 1 \text{ bod}$$

$$-10 = \frac{10x-6}{3} - 18 \Rightarrow x = 3 \dots\dots\dots 1 \text{ bod}$$

13.

Grafik funkcije $y = kx + n$ prolazi kroz tačke $A(10,16)$ i $B(20,31)$, pa važi

$$\begin{cases} 10k + n = 16 \\ 20k + n = 31 \end{cases} \Leftrightarrow \begin{cases} n = 16 - 10k \\ 20k + 16 - 10k = 31 \end{cases} \dots\dots\dots 1 \text{ bod}$$

$$\Leftrightarrow \begin{cases} n = 16 - 10k \\ k = 1,5 \end{cases} \Leftrightarrow \begin{cases} n = 1 \\ k = 1,5 \end{cases} \dots\dots\dots 1 \text{ bod}$$

$$y = 1,5x + 1 \Rightarrow 68,5 = 1,5x + 1 \dots\dots\dots 1 \text{ bod}$$

$$x = 45 \text{ cm} \dots\dots\dots 1 \text{ bod}$$

14.

$$\log_3 A = \log_3 b^3 - 2(\log_3(a \cdot c)) \dots\dots\dots 1 \text{ bod}$$

$$\log_3 A = \log_3 \frac{b^3}{a^2 c^2} \Rightarrow A = \frac{b^3}{a^2 c^2} \dots\dots\dots 1 \text{ bod}$$

15.

$$\text{Primjena Vijetovih formula } x_1 + x_2 = \frac{5}{3} \text{ i } x_1 \cdot x_2 = \frac{1}{3} \dots\dots\dots 1 \text{ bod}$$

$$\frac{(2x_1 + 2x_2)^3}{(x_1 \cdot x_2)^2} = \frac{1000}{3} \dots\dots\dots 1 \text{ bod}$$

16.

$$c^2 = a^2 + b^2 \Rightarrow c^2 = 6^2 + (c-2)^2 \dots\dots\dots 1 \text{ bod}$$

$$c = 10 \text{ cm}, b = 8 \text{ cm} \dots\dots\dots 1 \text{ bod}$$

$$c = H \dots\dots\dots 1 \text{ bod}$$

$$V = BH = \frac{ab}{2} \cdot c = 240 \text{ cm}^3 \dots\dots\dots 1 \text{ bod}$$

17.

$$t: y = kx + n \text{ Uslov dodira: } r^2(k^2 + 1) = (ka - b + n)^2$$

$$r^2(k^2 + 1) = (ka - b + n)^2 \Rightarrow (k^2 + 1) = (2k - 0 + n)^2 \dots\dots\dots 1 \text{ bod}$$

$$t: y = kx \dots\dots\dots 1 \text{ bod}$$

$$k^2 + 1 = 4k^2 \Rightarrow k^2 = \frac{1}{3} \dots\dots\dots 1 \text{ bod}$$

$$t_1: y = \frac{\sqrt{3}}{3}x, \quad t_2 = -\frac{\sqrt{3}}{3}x \dots\dots\dots 1 \text{ bod}$$

18.

$$x = \frac{y+4}{2} \text{ i } y^2 = 4x, \quad y^2 - 2y - 8 = 0 \dots\dots\dots 1 \text{ bod}$$

$$y_1 = 4, \quad x_1 = 4, \quad y_2 = -2, \quad x_2 = 1 \dots\dots\dots 1 \text{ bod}$$

$$\text{tražimo udaljenost između tačaka } (4,4) \text{ i } (1,-2): d = \sqrt{(1-4)^2 + (-2-4)^2} = \sqrt{45}$$

$$\dots\dots\dots 1 \text{ bod}$$

19.

$$\lim_{x \rightarrow -3} \frac{2x^2 + x - 15}{27 + x^3} = \lim_{x \rightarrow -3} \frac{(x+3)(2x-5)}{(x+3)(x^2 - 3x + 9)} \dots\dots\dots 1 \text{ bod}$$

$$\lim_{x \rightarrow -3} \frac{2x-5}{x^2 - 3x + 9} = -\frac{11}{27} \dots\dots\dots 1 \text{ bod}$$

20.

$$y' = 2 \sin \frac{1}{x} \cdot \left(\sin \frac{1}{x} \right)' \dots\dots\dots 1 \text{ bod}$$

$$= 2 \sin \frac{1}{x} \cdot \cos \frac{1}{x} \left(\frac{1}{x} \right)' \dots\dots\dots 1 \text{ bod}$$

$$= \frac{-2}{x^2} \sin \frac{1}{x} \cdot \cos \frac{1}{x} = -\frac{1}{x^2} \sin \frac{2}{x} \dots\dots\dots 1 \text{ bod}$$