



MATURSKI/STRUČNI ISPIT
JUN* 2025. GODINA

MATEMATIKA (OSNOVNI NIVO)
UPUTSTVO ZA OCJENJIVANJE

Rješenja zadataka višestrukog izbora

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

9.

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

$$B(x) = x^3 - 6x^2 + 9x = x(x-3)^2 \dots\dots\dots 1 \text{ bod}$$

$$NZD(A(x), B(x)) = x(x-3) \dots\dots\dots 1 \text{ bod}$$

10.

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

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

$$x - y = 6,415 - 4,315 = 2,1 \dots\dots\dots 1 \text{ bod}$$

11.

$$\text{Cijena stola nakon poskupljenja: } x + \frac{5}{100}x \dots\dots\dots 1 \text{ bod}$$

$$\frac{25}{100} \cdot \frac{105}{100} x = 42 \dots\dots\dots 1 \text{ bod}$$

$$21x = 42 \cdot 4 \cdot 20 \Rightarrow x = 160 \text{ eura} \dots\dots\dots 1 \text{ bod}$$

12.

$$x^2 + 4x + 3 = 0 \dots\dots\dots 1 \text{ bod}$$

$$x_1 = -3, x_2 = -1 \dots\dots\dots 1 \text{ bod}$$

13.

$$\left(\frac{27}{8}\right)^{x+1} = \left(\frac{2}{3}\right)^{-3(x+1)} \dots\dots\dots 1 \text{ bod}$$

$$\frac{\log 9}{\log 27} = \frac{2}{3} \dots\dots\dots 1 \text{ bod}$$

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

$$x = -\frac{4}{3} \dots\dots\dots 1 \text{ bod}$$

14.

$$\sin\left(x + \frac{\pi}{6}\right) = \sin x \cos \frac{\pi}{6} + \sin \frac{\pi}{6} \cos x \dots\dots\dots 1 \text{ bod}$$

$$= \frac{1}{3} \cdot \frac{\sqrt{3}}{2} + \frac{1}{2} \cos x \dots\dots\dots 1 \text{ bod}$$

$$\cos x = -\sqrt{1 - \sin^2 x} \text{ za } x \in \left(\frac{\pi}{2}, \pi\right) \dots\dots\dots 1 \text{ bod}$$

$$\sin\left(x + \frac{\pi}{6}\right) = \frac{\sqrt{3}}{6} + \frac{1}{2} \cdot \left(-\frac{2\sqrt{2}}{3}\right) = \frac{\sqrt{3} - 2\sqrt{2}}{6} \dots\dots\dots 1 \text{ bod}$$

15.

$$4480 = 70 \cdot 2^{0,2t} \dots\dots\dots 1 \text{ bod}$$

$$64 = 2^{0,2t} \Rightarrow 2^6 = 2^{0,2t} \dots\dots\dots 1 \text{ bod}$$

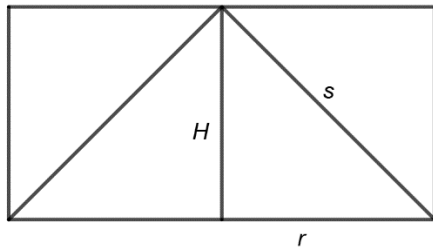
$$6 = 0,2 \cdot t \Rightarrow t = 30 \text{ dana} \dots\dots\dots 1 \text{ bod}$$

16.

$$6a^2 + 144 = 6(a+2)^2 \dots\dots\dots 1 \text{ bod}$$

$$6a^2 + 144 = 6a^2 + 24a + 24 \Rightarrow 24a = 120 \Rightarrow a = 5 \text{ cm} \dots\dots\dots 1 \text{ bod}$$

17.



Prav valjak i prava kupa imaju zajedničku osnovu poluprečnika $r = 4\text{ cm}$ 1 bod

Formiranje sistema $\begin{cases} s : H = 5 : 3 \\ H^2 + r^2 = s^2 \end{cases}$ 1 bod

Rješavanje sistema, npr. $s = \frac{5H}{3} \Rightarrow H^2 + 4^2 = \left(\frac{5H}{3}\right)^2$ 1 bod

$H = 3\text{ cm}, s = 5\text{ cm}$ 1 bod

$\frac{P_v}{P_k} = \frac{56\pi\text{ cm}^2}{36\pi\text{ cm}^2} = \frac{14}{9}$ 1 bod

18.

$$k = 2, \quad n = -14$$

Uslov dodira: $a^2k^2 + b^2 = n^2 \Rightarrow a^2 \cdot 4 + b^2 = 196$ 1 bod

$F_{1,2}(\pm\sqrt{a^2 - b^2}, 0) \Rightarrow a^2 - b^2 = 4$ 1 bod

$a^2 = 40, \quad b^2 = 36, \quad \frac{x^2}{40} + \frac{y^2}{36} = 1$ 1 bod

19.

$\frac{4-2x}{x^2} > 0 \wedge x^2 \neq 0$ 1 bod

$x^2 > 0 \Rightarrow 4-2x > 0 \Rightarrow x < 2$ 1 bod

$x^2 \neq 0 \Rightarrow x \neq 0 \Rightarrow x \in (-\infty, 0) \cup (0, 2)$ 1 bod

20.

$\lim_{x \rightarrow \infty} \frac{ax}{4x + 2025} = \frac{a}{4}$ 1 bod

$\frac{a}{4} = \frac{1}{7} \Rightarrow a = \frac{4}{7}$ 1 bod