

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

JUN II, 2023. GODINA

Rješenja zadataka višestrukog izbora

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

9.

$$\frac{a}{a+3} - \frac{3a}{a^2-3a+9} = \frac{a^3-3a^2+9a-3a^2-9a}{(a+3)(a^2-3a+9)} \dots\dots\dots 1 \text{ bod}$$

$$\left(\frac{a}{a+3} - \frac{3a}{a^2-3a+9}\right) : \frac{a^2}{a^3+27} = \frac{a^3-6a^2}{(a+3)(a^2-3a+9)} \cdot \frac{a^3+27}{a^2} \dots\dots\dots 1 \text{ bod}$$

$$a-6 \dots\dots\dots 1 \text{ bod}$$

10.

$$\downarrow 15 \quad 20 \uparrow \\ 15-3 \quad x, \quad 15:(15-3) = x:20 \dots\dots\dots 1 \text{ bod}$$

$$x = \frac{15 \cdot 20}{12} \Rightarrow x = 25 \dots\dots\dots 1 \text{ bod}$$

11.

X - početna cijena

$$\text{Cijena poslije poskupljenja: } X_1 = X + \frac{p}{100} X = \frac{100+p}{100} X \dots\dots\dots 1 \text{ bod}$$

$$\frac{100+p}{100} = \frac{7}{5} \dots\dots\dots 1 \text{ bod}$$

$$p = 40 \dots\dots\dots 1 \text{ bod}$$

12.

- Transformacija izraza u $(2x+1)^2 + (x+1)(x-1) = 5x+4$ 1 bod
 $5x^2 - x - 4 = 0$ 1 bod
 ~~$x_1 = 1$~~ $x_2 = -\frac{4}{5}$ 1 bod

13.

- $x_1 = 3x_2 \wedge x_1 + x_2 = 4$ 1 bod
 $x_1 = 3 \wedge x_2 = 1$ 1 bod
 $x_1 \cdot x_2 = k \Rightarrow k = 3$ 1 bod

14.

- $2^{2-\log_2 3} = \frac{4}{3}$ 1 bod
 $\log_{\frac{1}{4}} \frac{1}{\sqrt{8}} = \log_{\left(\frac{1}{2}\right)^2} \left(\frac{1}{2}\right)^{3/2}$ 1 bod
 $2^{2-\log_2 3} + \log_{\frac{1}{4}} \frac{1}{\sqrt{8}} = \frac{4}{3} + \frac{3}{2} \log_{\frac{1}{2}} \frac{1}{2} = \frac{4}{3} + \frac{3}{4} = \frac{25}{12}$ 1 bod

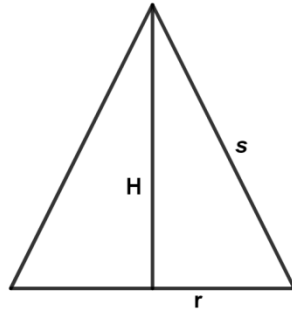
15.

- Zamjenom odgovarajućih koordinata se dobija sistem jednačina
 $12 = c \cdot a \wedge 36 = c \cdot a^2$ 1 bod
 $(c \cdot a \cdot a = 36 \wedge c \cdot a = 12) \Rightarrow 12 \cdot a = 36$ 1 bod
 $a = 3, c = 4$ 1 bod

16.

- $\frac{\cos x}{\sin x} \Rightarrow \frac{\cos x \sin x - \cos x}{\sin x} = 0$ 1 bod
 $\cos x (\sin x - 1) = 0$ 1 bod
 $\cos x = 0 \vee \sin x = 1$ 1 bod
 $x = \frac{\pi}{2} + k\pi, k \in Z$ 1 bod

17.



$$r = x, H = x + 1 \dots\dots\dots 1 \text{ bod}$$

$$P_{op} = \frac{2rH}{2} \Rightarrow 30 = x(x+1) \dots\dots\dots 1 \text{ bod}$$

$$x = 5 = r, H = 6 \dots\dots\dots 1 \text{ bod}$$

$$s = \sqrt{r^2 + H^2} = \sqrt{61} \dots\dots\dots 1 \text{ bod}$$

$$P = r^2\pi + r\pi s = 25\pi + 5\sqrt{61}\pi \dots\dots\dots 1 \text{ bod}$$

18.

$$x^2 + y^2 + 4x - 2y = 0 \Leftrightarrow (x+2)^2 + (y-1)^2 = 5 \dots\dots\dots 1 \text{ bod}$$

$$C_1(-2,1), \text{ a simetrična tačka iz IV kvadranta je } C_2(2,-1) \dots\dots\dots 1 \text{ bod}$$

$$r_1 = r_2 = \sqrt{5} \Rightarrow (x-2)^2 + (y+1)^2 = 5 \dots\dots\dots 1 \text{ bod}$$

19.

$$a = 2, b = 1 \dots\dots\dots 1 \text{ bod}$$

$$F(\pm\sqrt{a^2 - b^2}, 0), \text{ dakle žiže elipse su u tačkama } F(\pm\sqrt{3}, 0) \dots\dots\dots 1 \text{ bod}$$

Traženi četvorougao se sastoji od četiri popudarna trougla sa katetama dužine $\sqrt{3}$ i 1 $\dots\dots\dots 1 \text{ bod}$

$$P = 4 \cdot \frac{\sqrt{3} \cdot 1}{2} = 2\sqrt{3} \dots\dots\dots 1 \text{ bod}$$

20.

$$y' = 1 - \frac{4}{x} \quad (x > 0) \dots\dots\dots 1 \text{ bod}$$

$$y'' = \frac{4}{x^2} \dots\dots\dots 1 \text{ bod}$$

$$y'' + y' \leq 0 \Rightarrow \frac{x^2 - 4x + 4}{x^2} \leq 0 \dots\dots\dots 1 \text{ bod}$$

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