

SHEMA ZA BODOVANJE

MATURSKI ISPIT, MATEMATIKA

AVGUST 2015.

Rješenja zadataka višestrukog izbora

Broj zadatka	Tačna alternativa
1.	C
2.	A
3.	A
4.	A
5.	C
6.	A
7.	C
8.	D

9. Ukupno 3 boda

$$\frac{a(bc-1)}{b(ac-1)} \cdot \frac{ab-\frac{b}{c}}{ba-\frac{a}{c}} \dots\dots\dots 1 \text{ bod}$$

$$\frac{a(bc-1)}{b(ac-1)} \cdot \frac{abc-b}{abc-a} \dots\dots\dots 1 \text{ bod}$$

$$\frac{abc-a}{abc-b} \cdot \frac{abc-b}{abc-a} = 1 \dots\dots\dots 1 \text{ bod}$$

10. Ukupno 4 boda

C – cijena robe

$$\frac{1}{5} \text{ robe je } \frac{96}{100}C, \frac{1}{2} \text{ robe je } \frac{107}{100}C \dots\dots\dots 1 \text{ bod}$$

$$\frac{1}{5} \cdot \frac{96}{100}C + \frac{1}{2} \cdot \frac{107}{100}C + \frac{3}{10} \cdot \frac{x}{100}C = C \dots\dots\dots 1 \text{ bod}$$

$$3x = 273 \Rightarrow x = 91 \dots\dots\dots 1 \text{ bod}$$

Odgovor: ostatak robe treba prodati po cijeni koja je za 9% niža od planirane 1 bod

11. Ukupno 3 boda

$$4x^2 - 4x^2 + 1 > \frac{-2x+x-1}{4} \dots\dots\dots 1 \text{ bod}$$

$$x > -5 \dots\dots\dots 1 \text{ bod}$$

Korektno predstavljen skup rješenja na brojnoj pravoj 1 bod

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12. Ukupno 6 bodova

a) $f(0) = 10000 - 0^2$ 1 bod
 $f(0) = 10000 > 0$

b) $10000 - x^2 > 0 \Leftrightarrow (100 - x)(100 + x) > 0$ 1 bod

$f(x) > 0$ za $x \in (-100, 100)$ 1 bod

$f(x) > 0$ za $x \in (0, 100)$ 1 bod

c) $f'(x) = -2x$ 1 bod

$-2x < 0 \Leftrightarrow x > 0$ 1 bod

Zadata funkcija jeste funkcija **TRAŽNJE**.

13. Ukupno 4 boda

$\begin{cases} 2a^2 + 2b^2 = 122 \\ a + b = 11 \end{cases}$ 1 bod

$a^2 + (11 - a)^2 = 61$ ili $2a^2 + 2(11 - a)^2 = 122$ 1 bod

$a^2 - 11a + 30 = 0$ 1 bod

Stranice pravougaonika su 5 i 6 1 bod

14. Ukupno 3 boda

$f_{\max}(x) = f(-1) = \frac{5}{3}$ 1 bod

$g_{\max}(x) = g(1) = \frac{3}{2}$ 1 bod

$f_{\max}(x) > g_{\max}(x)$ 1 bod

15. Ukupno 4 boda

$x > 0$ 1 bod

$\frac{1}{3} \log_3 x \cdot \frac{1}{4} \log_3 x = \frac{1}{12}$ 1 bod

$\log_3^2 x = 1 \Rightarrow \log_3 x = 1 \vee \log_3 x = -1$ 1 bod

$x = 3 \vee x = \frac{1}{3}$ 1 bod

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16. Ukupno 3 boda

$$\frac{\cos(4\alpha - 3\alpha)}{\sin(4\alpha - 3\alpha)} \dots\dots\dots 1 \text{ bod}$$

$$\operatorname{ctg} \frac{3\pi}{4} = \operatorname{ctg} \left(\pi - \frac{\pi}{4} \right) = -\operatorname{ctg} \frac{\pi}{4} \dots\dots\dots 1 \text{ bod}$$

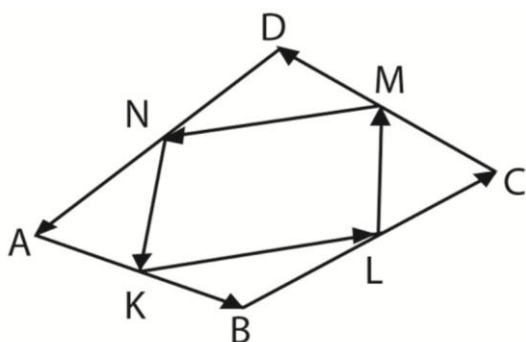
$$\operatorname{ctg} \frac{3\pi}{4} = -1 \dots\dots\dots 1 \text{ bod}$$

17. Ukupno 2 boda

$$\sin \frac{\alpha}{2} = \frac{a}{2b} \dots\dots\dots 1 \text{ bod}$$

$$\sin \frac{\alpha}{2} = \frac{a}{2a} = \frac{1}{4} \dots\dots\dots 1 \text{ bod}$$

18. Ukupno 3 boda



I način:

$$\vec{KL} = \vec{KB} + \vec{BL} = \frac{1}{2}\vec{AB} + \frac{1}{2}\vec{BC} = \frac{1}{2}\vec{AC} \quad \wedge \quad \vec{LM} = \vec{LC} + \vec{CM} = \frac{1}{2}\vec{BC} + \frac{1}{2}\vec{CD} = \frac{1}{2}\vec{BD} \quad \dots\dots 1 \text{ bod}$$

$$\vec{NM} = \vec{ND} + \vec{DM} = \frac{1}{2}\vec{AD} + \frac{1}{2}\vec{DC} = \frac{1}{2}\vec{AC} \quad \wedge \quad \vec{NK} = \vec{NA} + \vec{AK} = \frac{1}{2}\vec{DA} + \frac{1}{2}\vec{AB} = \frac{1}{2}\vec{DB}. \quad 1 \text{ bod}$$

$$\Rightarrow \vec{KL} = \vec{NM} \quad \wedge \quad \vec{LM} = \vec{KN} \Rightarrow \text{KLMN je paralelogram} \dots\dots\dots 1 \text{ bod}$$

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II način:

$\triangle ADB, \triangle DBC : KN = LM = \frac{1}{2}BD, KN \parallel LM$ (kao srednja linija trougla) 1 bod

$\triangle ABC, \triangle ACD : KL = MN = \frac{1}{2}AC, KL \parallel MN$ (kao srednja linija trougla) 1 bod

KLMN je paralelogram 1 bod

19. Ukupno 2 boda

$a_4 = S_4 - S_3$ 1 bod

$a_4 = 4$ 1 bod

20. Ukupno 3 boda

$\lim_{x \rightarrow 2} \frac{x^2 - 4}{3x^2 - 7x + 2} = a$ 1 bod

$\lim_{x \rightarrow 2} \frac{x^2 - 4}{3x^2 - 7x + 2} = \lim_{x \rightarrow 2} \frac{(x-2)(x+2)}{(x-2)(3x-1)}$ 1 bod

$a = \frac{4}{5}$ 1 bod