UPUTSTVO ZA OCJENJIVANJE

MATURSKI/STRUČNI ISPIT – MATEMATIKA (OSNOVNI NIVO)

T2 2024. GODINA

Rješenja zadataka višestrukog izbora

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

9.

a) $\left(\sqrt{12}-\sqrt{-3}\right)\left(3+\sqrt{-4}\right)=\left(2\sqrt{3}-i\sqrt{3}\right)(3+2i)$ ..... 1 bod

$6\sqrt{3}+4i\sqrt{3}-3i\sqrt{3}-2\sqrt{3}\cdot(-1)=8\sqrt{3}+i\sqrt{3}$ ..... 1 bod

b) $24^{27}:8^{27}=3^{27}$ ili $9^{11}+9^{11}+9^{11}=3\cdot 3^{22}$ ..... 1 bod

$\frac{3^{27}}{3^{23}}=3^4=81$ ..... 1 bod

10.

$4x^4-y^2x^2+24x^3-6xy^2=x\left(4x^3-y^2x+24x^2-6y^2\right)$ ..... 1 bod

Formiran proizvod $\left(4x^2-y^2\right)\left(x^2+6x\right)$ ..... 1 bod

$x(2x-y)(2x+y)(x+6)$ ..... 1 bod

11.

$\frac{1-5x}{1+5x}-\frac{1+5x}{1-5x}=\frac{20}{1-25x^2}$ ..... 1 bod

$\frac{(1-5x)^2-(1+5x)^2}{(1+5x)(1-5x)}=\frac{20}{(1+5x)(1-5x)}$ ..... 1 bod

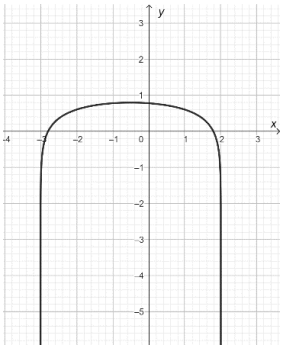
$1-10x+25x^2-1-10x-25x^2=20$ ..... 1 bod

$x=-1$ ..... 1 bod

12.

$-x^2-x+6>0$ ..... 1 bod

$x_1=-3, x_2=2$ ..... 1 bod



$x\in(-3,2)$ ..... 1 bod

13.

$\left(\frac{3}{7}\right)^{\frac{x^2-2x}{x^2}}=1\Rightarrow\left(\frac{3}{7}\right)^{\frac{x^2-2x}{x^2}}=\left(\frac{3}{7}\right)^0$ ..... 1 bod

$\frac{x^2-2x}{x^2}=0\Rightarrow x^2-2x=0$ ..... 1 bod

$x(x-2)=0\Rightarrow x=0$ ili $x=2$ ..... 1 bod

Kako je $x\neq 0\Rightarrow x=2$ ..... 1 bod

14.

Presjek sa $x-$osom su tačke oblika $(x,0)$, slijedi $\sin\left(x+\frac{3\pi}{4}\right)=0$ ..... 1 bod

$\sin\left(x+\frac{3\pi}{4}\right)=0\Rightarrow x+\frac{3\pi}{4}=k\pi, k\in Z$ ..... 1 bod

Tačke presjeka:

Za $k=-1\Rightarrow\left(-\frac{7\pi}{4},0\right)$

Za $k=0 \Rightarrow \left(-\frac{3\pi}{4},0\right)$

Za $k=1 \Rightarrow \left(\frac{\pi}{4},0\right)$

Za $k=2 \Rightarrow \left(\frac{5\pi}{4},0\right)$ ..... 1 bod

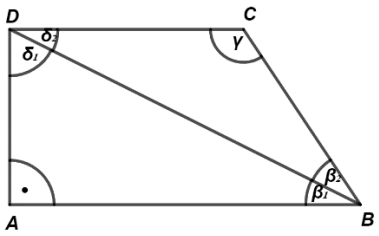
15.

$3x+4y=12 \Rightarrow y=-\frac{3}{4}x+3 \Rightarrow k=-\frac{3}{4}$ ..... 1 bod

Uslov normalnosti: $k_{AB}\cdot\left(-\frac{3}{4}\right)=-1 \Rightarrow k_{AB}=\frac{4}{3}$ ..... 1 bod

$k_{AB}=\frac{y_2-y_1}{x_2-x_1} \Rightarrow \frac{a+3}{3}=\frac{4}{3} \Rightarrow a=1$ ..... 1 bod

16.



$\delta_1=\measuredangle BDA=64^\circ$, $\gamma=\measuredangle BCD$ je tupi ugao trapeza

ΔBDC je jednakokraki $\Rightarrow \beta_2=\delta_2=90^\circ-\delta_1=26^\circ$ ..... 1 bod

$\gamma=180^\circ-2\delta_2=128^\circ$ ..... 1 bod

17.

$V_t=\frac{1}{2}V_{lopte}+V_{valjka}+V_{kupe}$ i $V_t=\frac{1}{2}\cdot\frac{4}{3}r^3\pi+r^2\pi H_{valjka}+\frac{1}{3}r^2\pi H_{kupe}$ ..... 1 bod

$r_{lopte}=r_{valjka}=r_{kupe}=r=3cm$ ..... 1 bod

$H^2{}_{kupe}=5^2-3^2 \Rightarrow H_{kupe}=4cm$ ..... 1 bod

$H_{valjka}=17cm-r-H_{kupe}=10cm$ ..... 1 bod

$V_t=120\pi\, cm^3$ ..... 1 bod

18.

$S_{2024}=\frac{2024}{2}\left(2a_1+2023d\right)$ ..... 1 bod

$a_1=\frac{2023}{2024},\ d=-\frac{1}{2024}$ ..... 1 bod

$S_{2024}=\frac{2023}{2}$ ..... 1 bod

19.

$f'(x)=\left(e^x\right)'\left(4x^3-12x\right)+e^x\left(4x^3-12x\right)'$ ..... 1 bod

$f'(x)=e^x\left(4x^3+12x^2-12x-12\right)$ ..... 1 bod

20.

$\lim\limits_{x\to1}\left(1-\frac{1}{x}\right)\left(\frac{3}{1-x^2}\right)=\lim\limits_{x\to1}\left(\frac{x-1}{x}\right)\left(\frac{3}{(1-x)(1+x)}\right)$ ..... 1 bod

$\lim\limits_{x\to1}\left(\frac{-3}{x(1+x)}\right)=-\frac{3}{2}$ ..... 1 bod