

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

19. MAJ 2021. GODINA

**Rješenja zadataka višestrukog izbora**

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

**9.**
 $x \neq \pm 1$  ..... 1 bod

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

$$\frac{x}{(x-1)(x+1)} \dots\dots\dots 1 \text{ bod}$$
**10.**
 $\frac{x}{100} 1200 = 360$  ili  $\frac{x}{100} 1200 = 840$  ..... 1 bod

Neoštećenih čaša: 70% ..... 1 bod

**11.**
**a)**  $z = 3 - i$  ..... 1 bod

$$\frac{1}{z} = \frac{1}{3-i} \cdot \frac{3+i}{3+i} = \frac{3+i}{10}$$
 ..... 1 bod

**b)**  $i^{2021} = i$  ili  $|z| = \sqrt{3^2 + (-1)^2} = \sqrt{10}$  ..... 1 bod

 $i^{2021} |z| = i\sqrt{10}$  ..... 1 bod

**12.**

$x = -8, y = 0 \Rightarrow (m+2) \cdot (-8) + (m-5) = 0$  ..... 1 bod

$m = -3$  ..... 1 bod

**13.**

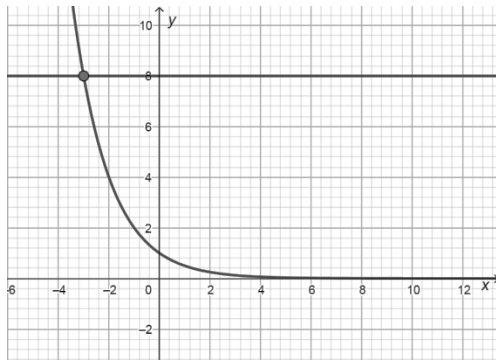
$x > 0$  ..... 1 bod

$\log_7 x + \log_7 x = -\log_7 9$  ..... 1 bod

$\log_7 x^2 = \log_7 \frac{1}{9} \Rightarrow x^2 = \frac{1}{9}$  ..... 1 bod

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

**14.**



Skiciran grafik funkcije  $f(x) = \left(\frac{1}{2}\right)^x$  ..... 1 bod

Skiciran grafik funkcije  $g(x) = 8$  ..... 1 bod

$\left(\frac{1}{2}\right)^x = 8$  ..... 1 bod

$x = -3$ , tačka presjeka:  $(-3, 8)$  ..... 1 bod

**15.**

I način:

$\cos^2 \alpha + \sin^2 \alpha = 1$  ..... 1 bod

$\cos \alpha = \frac{p}{3}, \sin \alpha = \frac{q}{2} \Rightarrow \left(\frac{p}{3}\right)^2 + \left(\frac{q}{2}\right)^2 = 1 \Rightarrow 4p^2 + 9q^2 = 36$  ..... 1 bod

**II način :**

$$4p^2 + 9q^2 = 4(3 \cos \alpha)^2 + 9(2 \sin \alpha)^2 \dots\dots\dots 1 \text{ bod}$$

$$4 \cdot 9 \cdot \cos^2 \alpha + 9 \cdot 4 \cdot \sin^2 \alpha = 36(\cos^2 \alpha + \sin^2 \alpha) = 36 \cdot 1 = 36 \dots\dots\dots 1 \text{ bod}$$

**16.**

a)  $d = \left| \frac{Ax_0 + By_0 + C}{\sqrt{A^2 + B^2}} \right| = \left| \frac{3 \cdot 2 - 4 \cdot 5 + 4}{\sqrt{3^2 + (-4)^2}} \right| = \left| \frac{-10}{5} \right| = 2 \dots\dots\dots 1 \text{ bod}$

b)  $r = d = 2 \dots\dots\dots 1 \text{ bod}$

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

**17.**

Kako tačke  $A$  i  $B$  nijesu sa iste strane  $x$ - ose, tražena tačka se dobija u presjeku prave  $AB$  i  $x$ - ose  $\dots\dots\dots 1 \text{ bod}$

$$p_{AB} : y - (-3) = \frac{4 - (-3)}{1 - 3}(x - 3) \dots\dots\dots 1 \text{ bod}$$

$$p : y = -\frac{7}{2}x + \frac{15}{2} \dots\dots\dots 1 \text{ bod}$$

$$y = 0 \Rightarrow x = \frac{15}{7}, M\left(\frac{15}{7}, 0\right) \dots\dots\dots 1 \text{ bod}$$

**18.**

**I način:**

$$\triangle ABO \text{ je jednakokraki pravougli trougao} \Rightarrow AB = r \wedge AO = r\sqrt{2} \dots\dots\dots 1 \text{ bod}$$

$$15 + r = r\sqrt{2} \dots\dots\dots 1 \text{ bod}$$

$$r = 15(\sqrt{2} + 1) \dots\dots\dots 1 \text{ bod}$$

**II način:**

$$\sin 45^\circ = \frac{r}{r+15} \dots\dots\dots 1 \text{ bod}$$

$$\frac{\sqrt{2}}{2} = \frac{r}{r+15} \dots\dots\dots 1 \text{ bod}$$

$$r = \frac{15}{\sqrt{2}-1} = 15(\sqrt{2}+1) \dots\dots\dots 1 \text{ bod}$$

**19.**

$$(\cos(\pi - x))' = \sin(\pi - x) \dots\dots\dots 1 \text{ bod}$$

$$f'(x) = 10\cos(\pi - x)\sin(\pi - x) \dots\dots\dots 1 \text{ bod}$$

$$f'\left(\frac{\pi}{2}\right) = 10\cos\frac{\pi}{2}\sin\frac{\pi}{2} = 0 \dots\dots\dots 1 \text{ bod}$$

**20.**

$$\lim_{x \rightarrow 16} \frac{\sqrt{x} - 4}{x - 16} = \lim_{x \rightarrow 16} \frac{1}{\sqrt{x} + 4} \dots\dots\dots 1 \text{ bod}$$

$$\lim_{x \rightarrow 16} \frac{1}{\sqrt{x} + 4} = \frac{1}{8} \dots\dots\dots 1 \text{ bod}$$