

Univerzitet u Tuzli
Fakultet elektrotehnike

ZBIRKA

**zadataka sa prijemnih ispita iz Matematike na
Fakultetu elektrotehnike u periodu od 2015-2023. godine
(za studijski program "Tehnički odgoj i informatika")**

Tuzla, maj 2024

UNIVERZITET U TUZLI Fakultet elektrotehnike TEHNIČKI ODGOJ I INFORMATIKA Tuzla, 09.07.2015.godine	KVALIFIKACIONI ISPIT IZ MATEMATIKE	GRUPA A
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1.	Vrijednost izraza $\frac{9-\frac{4}{3}}{\frac{4}{2}-\frac{9}{3}} \cdot \frac{6}{13}$ je:
	a) 1 b) $\frac{6}{13}$ c) $-\frac{6}{13}$ d) $\frac{6}{5}$
2.	Vrijednost izraza $\left[\frac{2}{3}-\frac{4}{5}\left(2-\frac{1}{2}\right)\right] \cdot \left[-\frac{4}{3}+\frac{8}{9}\left(2+\frac{2}{5}\right)\right]$ je:
	a) $\frac{2}{3}$ b) $-\frac{3}{2}$ c) $\frac{3}{2}$ d) $-\frac{2}{3}$
3.	Pojednostavljenjem izraza $\left(a+\frac{9}{a-6}\right) \cdot \left(\frac{12}{a^2-3a}-\frac{a}{9-6a+a^2}\right)$
	a) $\frac{a-6}{a}$ b) $-\frac{a-6}{a}$ c) $\frac{6+a}{a}$ d) $-\frac{6+a}{a}$
4.	Proizvod rješenja sistema $2x-y=4$ i $x+3y=-5$ je:
	a) -1 b) 1 c) -2 d) 2
5.	Vrijednost izraza $\left(\sqrt[4]{\sqrt{a^8}}\right)^3 : \left(\sqrt[6]{\sqrt[3]{a^9}}\right)^4$ je:
	a) $a^{\frac{4}{3}}$ b) a c) $a^{\frac{2}{3}}$ d) $a^{\frac{1}{3}}$
6.	Proizvod realnih rješenja jednačine $2x^2-5x+2=0$ je:
	a) 1 b) $\frac{1}{4}$ c) -4 d) -1
7.	Skup realnih rješenja nejednačine $\frac{2x+1}{x-1} < 0$ je:
	a) $\left(-1, -\frac{1}{2}\right)$ b) $\left(-\frac{1}{2}, 1\right)$ c) $(1, +\infty)$ d) $(-\infty, -1)$
8.	Modul kompleksnog broja $Z = \frac{-3+i}{2-i}$ je:
	a) $\sqrt{10}$ b) 10 c) $\sqrt{2}$ d) 2
9.	Ako je $\cos 3x = \frac{1}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$:
	a) $\frac{\pi}{9}$ b) $\frac{\pi}{3}$ c) $\frac{\pi}{6}$ d) $\frac{\pi}{2}$
10.	Za pravougli trougao su poznate vrijednosti katete 3 i hipotenuze 5. Koliko iznosi druga kateta?
	a) 8 b) 2 c) 12 d) 4

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.
Zaokružite slovo ispred tačnog odgovora.
Svaki zadatak nosi 4 boda.
Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
U ostalim slučajevima zadatak ne nosi bodove.

UNIVERZITET U TUZLI Fakultet elektrotehnike TEHNIČKI ODGOJ I INFORMATIKA Tuzla, 09.07.2015.godine	KVALIFIKACIONI ISPIT IZ MATEMATIKE	GRUPA A
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1.	$\frac{\frac{9}{4} - \frac{4}{9}}{\frac{2}{3}} \cdot \frac{6}{13} = \frac{\frac{81-16}{36}}{\frac{9-4}{6}} \cdot \frac{6}{13} = \frac{\frac{65}{36}}{\frac{5}{6}} \cdot \frac{6}{13} = \frac{65 \cdot 6}{36 \cdot 5} \cdot \frac{6}{13} = 1$
	a) 1 b) $\frac{6}{13}$ c) $-\frac{6}{13}$ d) $\frac{6}{5}$
2.	$\left[\frac{2}{3} - \frac{4}{5} \left(2 - \frac{1}{2} \right) \right] : \left[-\frac{4}{3} + \frac{8}{9} \left(2 + \frac{2}{5} \right) \right] = \left(\frac{2}{3} - \frac{4}{5} \cdot \frac{4-1}{2} \right) : \left(-\frac{4}{3} + \frac{8}{9} \cdot \frac{12}{5} \right) =$ $\left(\frac{2}{3} - \frac{6}{5} \right) : \left(-\frac{4}{3} + \frac{32}{15} \right) = \frac{10-18}{15} : \frac{-20+32}{15} = \frac{-8}{15} \cdot \frac{15}{-12} = \frac{2}{3}$
	a) $\frac{2}{3}$ b) $-\frac{3}{2}$ c) $\frac{3}{2}$ d) $-\frac{2}{3}$
3.	$\left(a + \frac{9}{a-6} \right) \cdot \left(\frac{12}{a^2-3a} - \frac{a}{9-6a+a^2} \right) = \frac{a^2-6a+9}{a-6} \cdot \left[\frac{12}{a(a-3)} - \frac{a^2}{(a-3)^2} \right] =$ $\frac{(a-3)^2}{a-6} \cdot \frac{12a-36-a^2}{a \cdot (a-3)^2} = \frac{1}{a-6} \cdot \frac{-(a-6)^2}{a} = -\frac{a-6}{a}$
	a) $\frac{a-6}{a}$ b) $-\frac{a-6}{a}$ c) $\frac{6+a}{a}$ d) $-\frac{6+a}{a}$
4.	$2x - y = 4 \quad / \cdot 3$ $x + 3y = -5$ <hr/> $6x - 3y = 12$ $x + 3y = -5$ <hr/> $7x = 7 \Rightarrow x = 1$ $1 + 3y = -5 \Rightarrow y = -2$ $x \cdot y = -2$
	a) -1 b) 1 c) -2 d) 2
5.	$\left(\sqrt[4]{\sqrt{a^8}} \right)^3 : \left(\sqrt[6]{\sqrt[3]{a^9}} \right)^4 = \left(\sqrt[8]{a^8} \right)^3 : \left(\sqrt[18]{a^9} \right)^4 = a^3 : \left(\sqrt{a} \right)^4 = a^3 : a^2 = a$
	a) $a^{\frac{4}{3}}$ b) a c) $a^{\frac{2}{3}}$ d) $a^{\frac{1}{3}}$
6.	$2x^2 - 5x + 2 = 0$ <p><i>Po Viète – ovim pravila proizvod rješenja kvadratne jednačine $ax^2 + bx + c = 0$ je:</i></p> $x_1 \cdot x_2 = \frac{c}{a} = \frac{2}{2} = 1$
	a) 1 b) $\frac{1}{4}$ c) -4 d) -1

7.	$\frac{2x+1}{x-1} < 0;$ $2x+1 > 0 \Rightarrow x > -\frac{1}{2}$ $x-1 > 0 \Rightarrow x > 1$ $x \in \left(-\frac{1}{2}, 1\right)$	<table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">-∞</td> <td style="text-align: center;">-1/2</td> <td style="text-align: center;">1</td> <td style="text-align: center;">+∞</td> </tr> <tr> <td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">2x+1</td> <td style="border-right: 1px solid black; padding: 5px;">-</td> <td style="padding: 5px;">+</td> <td style="padding: 5px;">+</td> <td></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">x-1</td> <td style="border-right: 1px solid black; padding: 5px;">-</td> <td style="padding: 5px;">-</td> <td style="padding: 5px;">+</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">+</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> <td></td> </tr> </table>		-∞	-1/2	1	+∞	2x+1	-	+	+		x-1	-	-	+			+	-	+	
	-∞	-1/2	1	+∞																		
2x+1	-	+	+																			
x-1	-	-	+																			
	+	-	+																			
a) $\left(-1, -\frac{1}{2}\right)$ b) $\left(-\frac{1}{2}, 1\right)$		c) $(1, +\infty)$ d) $(-\infty, -1)$																				
8.	$Z = \frac{-3+i}{2-i}$ $ Z = \frac{ -3+i }{ 2-i } = \frac{ -3+i }{\sqrt{2^2+(-1)^2}} = \frac{\sqrt{(-3)^2+1^2}}{\sqrt{5}} = \frac{\sqrt{10}}{\sqrt{5}} = \sqrt{2}$																					
a) $\sqrt{10}$		b) 10	c) $\sqrt{2}$	d) 2																		
9.	$\cos 3x = \frac{1}{2}$ <p><i>Za I kvadrant vrijedi: $3x = \frac{\pi}{3} \Rightarrow x = \frac{\pi}{9}$.</i></p>																					
a) $\frac{\pi}{9}$		b) $\frac{\pi}{3}$	c) $\frac{\pi}{6}$	d) $\frac{\pi}{2}$																		
10.	<p><i>Poznato je kateta $a = 3$ i hipotenuza $c = 5$.</i></p> <p><i>Druga kateta se može izračunati po Pitagorinoj teoremi:</i></p> $b = \sqrt{c^2 - a^2} = \sqrt{5^2 - 3^2} = 4.$																					
a) 8		b) 2	c) 12	d) 4																		

1.	Vrijednost izraza $\sqrt{\frac{3}{16} : \left(8 + \frac{1}{3}\right) + \frac{1}{25}}$
	a) 2 b) $\frac{1}{4}$ c) $\frac{1}{2}$ d) 1
2.	Vrijednost izraza $\left[\frac{2}{3} - \frac{4}{5}\left(2 + \frac{1}{2}\right)\right] : \left[\frac{4}{3} - \frac{8}{9}\left(2 + \frac{2}{5}\right)\right]$ je:
	a) $-\frac{1}{2}$ b) $-\frac{5}{3}$ c) $\frac{1}{2}$ d) $\frac{5}{3}$
3.	Pojednostavljenjem izraza $\left[\frac{b}{b+c-a} \cdot \left(\frac{1}{a} - \frac{1}{b+c}\right)\right](b+c)$ se dobiva:
	a) $\frac{b}{a}$ b) $\frac{a}{b+c-a}$ c) $\frac{b+c}{b+c-a}$ d) $b+c$
4.	Zbir rješenja sistema $2x+4y=-2$ i $-3x+5y=3$ je:
	a) -2 b) -1 c) 0 d) 1
5.	Vrijednost izraza $\sqrt{x^3} : \sqrt[3]{x^2}$ je:
	a) $\sqrt[3]{x}$ b) x^2 c) $\sqrt[6]{x^5}$ d) $\sqrt[3]{x^2}$
6.	Zbir realnih rješenja jednačine $x^2 - 3x + 2 = 0$ je:
	a) 2 b) -3 c) -2 d) 3
7.	Skup realnih rješenja nejednačine $\frac{3x+1}{4x+1} \geq 1$ je:
	a) $(0,2]$ b) $(0,+\infty)$ c) $\left[-\frac{1}{4},0\right]$ d) $\left[-2,-\frac{1}{4}\right)$
8.	Modul kompleksnog broja $Z = \frac{-1+3i}{-2+i}$ je:
	a) $\sqrt{2}$ b) $\sqrt{10}$ c) 2 d) 5
9.	Ako je $\cos 2x = \frac{\sqrt{2}}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$:
	a) $\frac{\pi}{2}$ b) $\frac{\pi}{4}$ c) $\frac{\pi}{8}$ d) $\frac{\pi}{12}$
10.	Stranice pravouganika su 6 i 8. Koliko iznosi dijagonala pravougaonika?
	a) 14 b) 10 c) 7 d) 2
NAPOMENA	Poslije svakog zadatka ponuđena su četiri odgovora. Zaokružite slovo ispred tačnog odgovora. Svaki zadatak nosi 4 boda. Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda. U ostalim slučajevima zadatak ne nosi bodove.

1.	Ako je $a = \frac{\sqrt{5}+1}{2}$ i $b = \frac{1-\sqrt{5}}{2}$, onda je $a^2 + b^2$:
	a) $2\sqrt{5}$ b) $\sqrt{5}$ c) 3 d) 1
2.	Vrijednost izraza $\sqrt{\frac{16}{9} + \frac{3}{25}} : \left(8 + \frac{1}{3}\right)$ je:
	a) $\frac{5}{3}$ b) $\frac{3}{5}$ c) $\frac{4}{5}$ d) 1
3.	Vrijednost izraza $\frac{8}{23} + \left[\frac{1}{2} + \left(\frac{1}{8} - \frac{1}{4}\right)\right] \cdot \frac{40}{23}$ je:
	a) $\frac{1}{23}$ b) $\frac{16}{23}$ c) -1 d) 1
4.	Vrijednost izraza $\left(\sqrt{\sqrt[6]{a^4}}\right)^{12} : \left(\sqrt[3]{\sqrt[4]{a^6}}\right)^8$ je:
	a) a^2 b) a c) 1 d) $\frac{1}{a}$
5.	Zbir rješenja sistema $2x - 3y = 7$ i $3x + 2y = 4$ je:
	a) -1 b) 1 c) 2 d) -2
6.	Proizvod realnih rješenja jednačine $3x^2 - 5x - 2 = 0$ je:
	a) $-\frac{2}{3}$ b) $-\frac{5}{3}$ c) $\frac{5}{3}$ d) -1
7.	Skup realnih rješenja nejednačine $\frac{4x-1}{5x-1} \geq 1$ je:
	a) $\left[\frac{1}{5}, \frac{1}{4}\right]$ b) $\left[-\frac{1}{4}, -\frac{1}{5}\right]$ c) $\left[\frac{1}{5}, 1\right]$ d) $\left[0, \frac{1}{5}\right]$
8.	Modul kompleksnog broja $Z = \frac{3-4i}{-1+2i}$ je:
	a) $2\sqrt{5}$ b) $\sqrt{5}$ c) 5 d) 1
9.	Ako je $\sin 3x = \frac{\sqrt{3}}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$:
	a) $\frac{\pi}{3}$ b) $\frac{\pi}{6}$ c) $\frac{\pi}{9}$ d) $\frac{\pi}{12}$
10.	Vrijednosti hipotenuze i jedne katete pravouglog trougla su 5 i 3. Koliko iznosi površina trougla?
	a) 6 b) 4 c) 12 d) 15
NAPOMENA	Poslije svakog zadatka ponuđena su četiri odgovora. Zaokružite slovo ispred tačnog odgovora. Svaki zadatak nosi 4 boda. Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda. U ostalim slučajevima zadatak ne nosi bodove.

1.	Vrijednost izraza $\sqrt{\frac{9}{16} + \frac{5}{3} : \left(2 - \frac{1}{3}\right)}$ je:
	a) $\frac{5}{4}$ b) 1 c) $\frac{4}{5}$ d) 2
2.	Ako je $a = \frac{\sqrt{3}-1}{2}$ i $b = \frac{\sqrt{3}+1}{2}$, onda je $a^2 - b^2$:
	a) $-2\sqrt{3}$ b) $2\sqrt{3}$ c) 2 d) $-\sqrt{3}$
3.	Vrijednost izraza $\frac{13}{18} + \left[\frac{1}{3} - \left(\frac{1}{6} - \frac{1}{9}\right)\right] \cdot \frac{7}{5}$ je:
	a) $\frac{7}{5}$ b) $\frac{7}{18}$ c) $\frac{1}{3}$ d) 1
4.	Vrijednost izraza $\left(\sqrt{12\sqrt{a^3}}\right)^{16} : \left(\sqrt[3]{\sqrt[4]{a^2}}\right)^9$ je:
	a) a b) \sqrt{a} c) a^2 d) $\sqrt[6]{a}$
5.	Zbir rješenja sistema $x - 3y = 4$ i $3x + 2y = 1$ je:
	a) -2 b) 2 c) 0 d) -1
6.	Zbir realnih rješenja jednačine $2x^2 + 4x - 9 = 0$ je:
	a) 2 b) $-\frac{7}{2}$ c) -2 d) $-\frac{9}{2}$
7.	Modul kompleksnog broja $Z = \frac{3+i}{2-i}$ je:
	a) 1 b) 2 c) $\sqrt{2}$ d) $\sqrt{5}$
8.	Skup realnih rješenja nejednačine $\frac{x-2}{2x-1} \geq 1$ je:
	a) $[-2, -1)$ b) $\left[-1, \frac{1}{2}\right)$ c) $\left[\frac{1}{2}, 1\right)$ d) $[1, +\infty)$
9.	Ako je $\cos 3x = \frac{\sqrt{2}}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$:
	a) $\frac{\pi}{12}$ b) $\frac{\pi}{4}$ c) $\frac{\pi}{2}$ d) $\frac{\pi}{6}$
10.	Stranice pravouganika su 4 i 3. Koliko iznosi dijagonala pravougaonika?
	a) 7 b) 5 c) 6 d) 8

NAPOMENA

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potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
U ostalim slučajevima zadatak ne nosi bodove.

1.	Vrijednost izraza $\sqrt{\frac{25}{16} + \frac{5}{3} : \left(\frac{1}{3} - 2\right)}$ je:
	a) $\frac{5}{4}$ b) $\frac{1}{4}$ c) $\frac{3}{4}$ d) 1
2.	Ako je $a = \frac{\sqrt{3}-1}{3}$ i $b = \frac{\sqrt{3}+1}{3}$, onda je $a^2 + b^2$:
	a) $\frac{8}{9}$ b) $\frac{4\sqrt{3}}{9}$ c) $\frac{4}{9}$ d) $\frac{2}{3}$
3.	Vrijednost izraza $\frac{13}{18} - \left[\frac{1}{9} - \left(\frac{1}{6} - \frac{2}{3} \right) \right] \cdot \frac{7}{11}$ je:
	a) $\frac{7}{11}$ b) $-\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{3}$
4.	Vrijednost izraza $\left(\sqrt[6]{a^3} \right)^8 : \left(\sqrt[3]{\sqrt[4]{a^9}} \right)^2$ je:
	a) \sqrt{a} b) a c) a^2 d) $\sqrt[6]{a}$
5.	Zbir rješenja sistema $7x + 3y = 4$ i $x - 2y = 3$ je:
	a) -2 b) 2 c) 3 d) 0
6.	Proizvod realnih rješenja jednačine $3x^2 - 7x - 6 = 0$ je:
	a) 3 b) -2 c) $\frac{7}{3}$ d) 2
7.	Modul kompleksnog broja $Z = \frac{3+i}{2+i}$ je:
	a) 2 b) 1 c) $\sqrt{2}$ d) $\sqrt{5}$
8.	Skup realnih rješenja nejednačine $\frac{x+2}{2x-1} \geq 1$ je:
	a) $\left[\frac{1}{2}, 3 \right]$ b) $\left[-\frac{1}{2}, \frac{1}{2} \right]$ c) $\left[-3, -\frac{1}{2} \right]$ d) $(-\infty, -3]$
9.	Ako je $\cos 2x = \frac{\sqrt{2}}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2} \right]$:
	a) $\frac{\pi}{12}$ b) $\frac{\pi}{8}$ c) $\frac{\pi}{4}$ d) $\frac{\pi}{6}$
10.	Stranice pravouganika su 16 i 12. Koliko iznosi dijagonala pravougaonika?
	a) 26 b) 24 c) 18 d) 20

NAPOMENA

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 Samo zaokruženo tačno rješenje zadatka koje je
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 U ostalim slučajevima zadatak ne nosi bodove.

1.	$\sqrt{\frac{25}{16} + \frac{5}{3} \cdot \left(\frac{1}{3} - 2\right)} = \sqrt{\frac{25}{16} + \frac{5}{3} \cdot \frac{1-6}{3}} = \sqrt{\frac{25}{16} + \frac{5}{3} \cdot \frac{-5}{3}} = \sqrt{\frac{25}{16} - 1} = \sqrt{\frac{25-16}{16}} = \sqrt{\frac{9}{16}} = \frac{3}{4}.$
	a) $\frac{5}{4}$ b) $\frac{1}{4}$ c) $\frac{3}{4}$ d) 1
2.	$a^2 + b^2 = \left(\frac{\sqrt{3}-1}{3}\right)^2 + \left(\frac{\sqrt{3}+1}{3}\right)^2 = \frac{3-2\sqrt{3}+1}{9} + \frac{3+2\sqrt{3}+1}{9} = \frac{4-2\sqrt{3}+4+2\sqrt{3}}{9} = \frac{8}{9}.$
	a) $\frac{8}{9}$ b) $\frac{4\sqrt{3}}{9}$ c) $\frac{4}{9}$ d) $\frac{2}{3}$
3.	$\frac{13}{18} - \left[\frac{1}{9} - \left(\frac{1}{6} - \frac{2}{3}\right)\right] \cdot \frac{7}{11} = \frac{13}{18} - \left[\frac{1}{9} - \frac{1-4}{6}\right] \cdot \frac{7}{11} = \frac{13}{18} - \left(\frac{1}{9} - \frac{-3}{6}\right) \cdot \frac{7}{11} = \frac{13}{18} - \left(\frac{1}{9} + \frac{3}{6}\right) \cdot \frac{7}{11} =$ $= \frac{13}{18} - \left(\frac{1}{9} + \frac{3}{6}\right) \cdot \frac{7}{11} = \frac{13}{18} - \frac{2+9}{18} \cdot \frac{7}{11} = \frac{13}{18} - \frac{11}{18} \cdot \frac{7}{11} = \frac{13}{18} - \frac{7}{18} = \frac{6}{18} = \frac{1}{3}.$
	a) $\frac{7}{11}$ b) $-\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{3}$
4.	$\left(\sqrt[6]{a^3}\right)^8 : \left(\sqrt[3]{\sqrt[4]{a^9}}\right)^2 = \left(\sqrt[6]{a^3}\right)^8 : \left(\sqrt[3]{\sqrt[4]{a^9}}\right)^2 = \left[\left(\sqrt[6]{a^3}\right)^{\frac{1}{2}}\right]^8 : \left[\left(\sqrt[4]{a^9}\right)^{\frac{1}{3}}\right]^2 = \left(\sqrt[6]{a^3}\right)^4 : \left(\sqrt[4]{a^9}\right)^{\frac{2}{3}} =$ $= \left(a^{\frac{3}{6}}\right)^4 : \left(a^{\frac{9}{4}}\right)^{\frac{2}{3}} = a^{\frac{12}{6}} : a^{\frac{18}{12}} = a^2 : a^{\frac{3}{2}} = a^{2-\frac{3}{2}} = a^{\frac{1}{2}} = \sqrt{a}.$
	a) \sqrt{a} b) a c) a^2 d) $\sqrt[6]{a}$
5.	$7x + 3y = 4 \quad / \cdot 2$ $x - 2y = 3 \quad / \cdot 3$ $14x + 6y = 8$ $3x - 6y = 9$ $17x = 17 \Rightarrow x = 1$ $1 - 2y = 3 \Rightarrow -2y = 2 \quad y = -1$ $x + y = 0.$
	a) -2 b) 2 c) 3 d) 0
6.	$3x^2 - 7x - 6 = 0$ <p>Za rješenja kvadratne jednačine $ax^2 + bx + c = 0$ vrijedi da je njihov proizvod: $x_1 \cdot x_2 = \frac{c}{a}$.</p> $x_1 \cdot x_2 = \frac{-6}{3} = -2.$
	a) 3 b) -2 c) $\frac{7}{3}$ d) 2
7.	$ Z = \left \frac{3+i}{2+i}\right = \frac{ 3+i }{ 2+i } = \frac{\sqrt{3^2+1^2}}{\sqrt{2^2+1^2}} = \frac{\sqrt{9+1}}{\sqrt{4+1}} = \frac{\sqrt{10}}{\sqrt{5}} = \sqrt{2}.$
	a) 2 b) 1 c) $\sqrt{2}$ d) $\sqrt{5}$

8.	$\frac{x+2}{2x-1} \geq 1$ $D.p.: 2x-1 \neq 0 \Rightarrow x \neq \frac{1}{2}$ $\frac{x+2}{2x-1} - 1 \geq 0$ $\frac{x+2-2x+1}{2x-1} \geq 0$ $\frac{-x+3}{2x-1} \geq 0 \quad / \cdot (-1)$ $\frac{x-3}{2x-1} \leq 0$ $x \in \left(\frac{1}{2}, 3\right]$												
	$-\infty \qquad \frac{1}{2} \qquad 3 \qquad +\infty$ <table border="1" data-bbox="660 282 1181 416"> <tbody> <tr> <td>$x-3$</td> <td>-</td> <td>-</td> <td>+</td> </tr> <tr> <td>$2x-1$</td> <td>-</td> <td>+</td> <td>+</td> </tr> <tr> <td>R</td> <td>+</td> <td>-</td> <td>+</td> </tr> </tbody> </table>	$x-3$	-	-	+	$2x-1$	-	+	+	R	+	-	+
$x-3$	-	-	+										
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R	+	-	+										
	<p>a) $\left(\frac{1}{2}, 3\right]$ b) $\left(-\frac{1}{2}, \frac{1}{2}\right]$ c) $\left(-3, -\frac{1}{2}\right]$ d) $(-\infty, -3]$</p>												
9.	$\cos 2x = \frac{\sqrt{2}}{2}$ $2x_1 = \frac{\pi}{4} + 2k\pi \Rightarrow x_1 = \frac{\pi}{8} + k\pi$ $x_1 = \frac{\pi}{8} \in \left[0, \frac{\pi}{2}\right]$ $2x_2 = \frac{7\pi}{4} + 2k\pi \Rightarrow x_2 = \frac{7\pi}{8} + k\pi$ $x_2 = \frac{7\pi}{8} \notin \left[0, \frac{\pi}{2}\right]$ <p>Rješenje jednačine: $\frac{\pi}{8}$.</p>												
	<p>a) $\frac{\pi}{12}$ b) $\frac{\pi}{8}$ c) $\frac{\pi}{4}$ d) $\frac{\pi}{6}$</p>												
10.	<p>Dijagonala pravougaonika je:</p> $d = \sqrt{a^2 + b^2} = \sqrt{12^2 + 16^2} = \sqrt{144 + 256} = \sqrt{400} = 20.$												
	<p>a) 26 b) 24 c) 18 d) 20</p>												

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.

Zaokružite slovo ispred tačnog odgovora.

Svaki zadatak nosi 4 boda.

Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.

U ostalim slučajevima zadatak ne nosi bodove.

1.	Ako je $a = \frac{\sqrt{3}+1}{3}$ i $b = \frac{\sqrt{3}-1}{3}$, onda je $a^2 + b^2$:
	a) $\frac{4}{9}$ b) $\frac{8}{9}$ c) $\frac{20}{9}$ d) $\frac{8}{3}$
2.	Vrijednost izraza $\sqrt{\frac{25}{16} - \frac{5}{3} \cdot \left(2 - \frac{1}{3}\right)}$ je:
	a) $\frac{5}{12}$ b) $\frac{1}{4}$ c) $\frac{5}{4}$ d) $\frac{3}{4}$
3.	Vrijednost izraza $\frac{13}{18} + \left[\frac{1}{6} + \left(\frac{1}{9} - \frac{2}{3}\right)\right] \cdot \frac{4}{7}$ je:
	a) 1 b) $\frac{1}{7}$ c) $\frac{1}{2}$ d) $\frac{4}{7}$
4.	Vrijednost izraza $\left(\sqrt[6]{a^8}\right)^3 : \left(\sqrt[3]{\sqrt[4]{a^9}}\right)^2$ je:
	a) \sqrt{a} b) a c) a^2 d) $\sqrt[6]{a}$
5.	Zbir rješenja sistema $7x + 3y = 4$ i $2x - 3y = 5$ je:
	a) 2 b) 3 c) 0 d) -2
6.	Zbir realnih rješenja jednačine $3x^2 - 7x - 11 = 0$ je:
	a) 2 b) -3 c) $-\frac{11}{3}$ d) $\frac{7}{3}$
7.	Modul kompleksnog broja $Z = \frac{1-3i}{1+2i}$ je:
	a) $\sqrt{2}$ b) 2 c) $\sqrt{5}$ d) 1
8.	Skup realnih rješenja nejednačine $\frac{x-3}{2x-3} \geq 1$ je:
	a) $\left[-3, -\frac{3}{2}\right)$ b) $\left[0, \frac{3}{2}\right)$ c) $\left[\frac{3}{2}, 3\right)$ d) $[1, 2)$
9.	Ako je $\cos 2x = \frac{1}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$:
	a) $\frac{\pi}{6}$ b) $\frac{\pi}{3}$ c) $\frac{\pi}{12}$ d) $\frac{\pi}{4}$
10.	Stranice pravougaonika su 12 i 16. Koliko iznosi dijagonala pravougaonika?
	a) 28 b) 24 c) 18 d) 20

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.
Zaokružite slovo ispred tačnog odgovora.
Svaki zadatak nosi 4 boda.
Samo zaokruženo tačno rješenje zadatka koje je
potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
U ostalim slučajevima zadatak ne nosi bodove.

1.	$a^2 + b^2 = \left(\frac{\sqrt{3}+1}{3}\right)^2 + \left(\frac{\sqrt{3}-1}{3}\right)^2 = \frac{3+2\sqrt{3}+1}{9} + \frac{3-2\sqrt{3}+1}{9} = \frac{4+2\sqrt{3}+4-2\sqrt{3}}{9} = \frac{8}{9}.$
	a) $\frac{4}{9}$ b) $\frac{8}{9}$ c) $\frac{20}{9}$ d) $\frac{8}{3}$
2.	$\sqrt{\frac{25}{16} - \frac{5}{3} \cdot \left(2 - \frac{1}{3}\right)} = \sqrt{\frac{25}{16} - \frac{5}{3} \cdot \frac{6-1}{3}} = \sqrt{\frac{25}{16} - \frac{5}{3} \cdot \frac{5}{3}} = \sqrt{\frac{25}{16} - 1} = \sqrt{\frac{25-16}{16}} = \sqrt{\frac{9}{16}} = \frac{3}{4}.$
	a) $\frac{5}{12}$ b) $\frac{1}{4}$ c) $\frac{5}{4}$ d) $\frac{3}{4}$
3.	$\frac{13}{18} + \left[\frac{1}{6} + \left(\frac{1}{9} - \frac{2}{3}\right)\right] \cdot \frac{4}{7} = \frac{13}{18} + \left[\frac{1}{6} + \frac{1-6}{9}\right] \cdot \frac{4}{7} = \frac{13}{18} + \left(\frac{1}{6} + \frac{-5}{9}\right) \cdot \frac{4}{7} = \frac{13}{18} + \left(\frac{1}{6} - \frac{5}{9}\right) \cdot \frac{4}{7} =$ $= \frac{13}{18} + \frac{3-10}{18} \cdot \frac{4}{7} = \frac{13}{18} - \frac{7}{18} \cdot \frac{4}{7} = \frac{13}{18} - \frac{4}{18} = \frac{9}{18} = \frac{1}{2}.$
	a) 1 b) $\frac{1}{7}$ c) $\frac{1}{2}$ d) $\frac{4}{7}$
4.	$\left(\sqrt[6]{a^8}\right)^3 : \left(\sqrt[3]{\sqrt[4]{a^9}}\right)^2 = \left[\left(\sqrt[6]{a^8}\right)^{\frac{1}{2}}\right]^3 : \left[\left(\sqrt[4]{a^9}\right)^{\frac{1}{3}}\right]^2 = \left(\sqrt[6]{a^8}\right)^{\frac{3}{2}} : \left(\sqrt[4]{a^9}\right)^{\frac{2}{3}} =$ $= \left(a^{\frac{8}{6}}\right)^{\frac{3}{2}} : \left(a^{\frac{9}{4}}\right)^{\frac{2}{3}} = a^{\frac{24}{12}} : a^{\frac{18}{12}} = a^2 : a^{\frac{3}{2}} = a^{2-\frac{3}{2}} = a^{\frac{1}{2}} = \sqrt{a}.$
	a) \sqrt{a} b) a c) a^2 d) $\sqrt[6]{a}$
5.	$7x + 3y = 4$ $2x - 3y = 5$ $9x = 9 \Rightarrow x = 1$ $2 - 3y = 5 \Rightarrow -3y = 3 \Rightarrow y = -1$ $x + y = 0.$
	a) 2 b) 3 c) 0 d) -2
6.	$3x^2 - 7x - 11 = 0$ <p>Za rješenja kvadratne jednačine $ax^2 + bx + c = 0$ vrijedi da je njihov zbir: $x_1 + x_2 = -\frac{b}{a}$.</p> $x_1 + x_2 = -\frac{-7}{3} = \frac{7}{3}.$
	a) 2 b) -3 c) $-\frac{11}{3}$ d) $\frac{7}{3}$
7.	$ Z = \frac{ 1-3i }{ 1+2i } = \frac{ 1-3i }{\sqrt{1^2+(-2)^2}} = \frac{\sqrt{1^2+(-3)^2}}{\sqrt{1+4}} = \frac{\sqrt{10}}{\sqrt{5}} = \sqrt{2}.$
	a) $\sqrt{2}$ b) 2 c) $\sqrt{5}$ d) 1

8.	$\frac{x-3}{2x-3} \geq 1$ <p>D.p.: $2x-3 \neq 0 \Rightarrow x \neq \frac{1}{3}$</p> $\frac{x-3}{2x-3} - 1 \geq 0$ $\frac{x-3-2x+3}{2x-3} \geq 0$ $\frac{-x}{2x-3} \geq 0 \quad / \cdot (-1)$ $\frac{x}{2x-3} \leq 0$ $x \in \left(0, \frac{3}{2}\right]$	$-\infty \qquad 0 \qquad \frac{3}{2} \qquad +\infty$ <table border="1" data-bbox="663 273 1273 409"> <tbody> <tr> <td>x</td> <td>-</td> <td>+</td> <td>+</td> </tr> <tr> <td>$2x-3$</td> <td>-</td> <td>-</td> <td>+</td> </tr> <tr> <td>R</td> <td>+</td> <td>-</td> <td>+</td> </tr> </tbody> </table>	x	-	+	+	$2x-3$	-	-	+	R	+	-	+
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9.	$\cos 2x = \frac{1}{2}$ $2x_1 = \frac{\pi}{3} + 2k\pi \Rightarrow x_1 = \frac{\pi}{6} + k\pi$ $x_1 = \frac{\pi}{6} \in \left[0, \frac{\pi}{2}\right]$ $2x_2 = \frac{5\pi}{3} + 2k\pi \Rightarrow x_2 = \frac{5\pi}{6} + k\pi$ $x_2 = \frac{5\pi}{6} \notin \left[0, \frac{\pi}{2}\right]$ <p>Rješenje jednačine: $\frac{\pi}{6}$.</p>													
	a) $\frac{\pi}{6}$	b) $\frac{\pi}{3}$	c) $\frac{\pi}{12}$ d) $\frac{\pi}{4}$											
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	a) 28	b) 24	c) 18 d) 20											

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.
 Zaokružite slovo ispred tačnog odgovora.
 Svaki zadatak nosi 4 boda.
 Samo zaokruženo tačno rješenje zadatka koje je
 potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
 U ostalim slučajevima zadatak ne nosi bodove.

1.	Ako je $a = \frac{\sqrt{2} + \sqrt{3}}{2}$ i $b = \frac{\sqrt{2} - \sqrt{3}}{2}$, onda je $a^2 - b^2$:
	a) $\sqrt{6}$ b) $\frac{5}{2}$ c) $-\sqrt{6}$ d) 1
2.	Vrijednost izraza $\sqrt{\frac{3}{4} + \frac{4}{3} : \left(1 - \frac{1}{9}\right)}$ je:
	a) $\frac{5}{4}$ b) $\frac{3}{2}$ c) $\frac{2}{3}$ d) 1
3.	Vrijednost izraza $\frac{5}{12} + \left[\frac{1}{5} - \left(\frac{1}{9} + \frac{2}{3}\right)\right] \cdot \frac{5}{13}$ je:
	a) $\frac{23}{36}$ b) $\frac{7}{36}$ c) $\frac{1}{9}$ d) 1
4.	Vrijednost izraza $\left(\sqrt[6]{\sqrt[3]{a^3}}\right)^{12} : \left(\sqrt[6]{\sqrt{a^3}}\right)^{12}$ je:
	a) a^2 b) a c) $\frac{1}{a}$ d) 1
5.	Proizvod rješenja sistema $7x - 2y = 13$ i $2x + 3y = -7$ je:
	a) -1 b) 1 c) 3 d) -3
6.	Zbir realnih rješenja jednačine $2x^2 + 4x + 8 = 0$ je:
	a) 2 b) $\frac{\sqrt{3}}{2}$ c) -2 d) $\frac{17}{4}$
7.	Skup realnih rješenja nejednačine $\frac{2x-3}{3x+2} \leq 0$ je:
	a) $\left(\frac{1}{2}, \frac{2}{3}\right]$ b) $\left(-\frac{2}{3}, \frac{3}{2}\right]$ c) $\left(\frac{1}{2}, 1\right]$ d) $\left[-\frac{1}{2}, \frac{2}{3}\right)$
8.	Modul kompleksnog broja $Z = \frac{3+4i}{1-2i}$ je:
	a) $2\sqrt{5}$ b) $\sqrt{5}$ c) 5 d) 1
9.	Ako je $\sin x = \frac{\sqrt{2}}{2}$, odrediti x tako da $x \in \left[\frac{\pi}{2}, \pi\right]$:
	a) $\frac{\pi}{4}$ b) $\frac{2\pi}{3}$ c) $\frac{3\pi}{4}$ d) $\frac{4\pi}{5}$
10.	Dijagonala kvadrata je $d = 6\sqrt{2}$. Koliko iznosi površina kvadrata?
	a) 36 b) 9 c) 18 d) 12

1.	$a^2 - b^2 = \left(\frac{\sqrt{2} + \sqrt{3}}{2}\right)^2 - \left(\frac{\sqrt{2} - \sqrt{3}}{2}\right)^2 = \frac{2 + 2\sqrt{6} + 3}{4} - \frac{2 - 2\sqrt{6} + 3}{4} = \frac{5 + 2\sqrt{6} - 5 + 2\sqrt{6}}{4} = \frac{4\sqrt{6}}{4} = \sqrt{6}.$
	<p>a) $\sqrt{6}$ b) $\frac{5}{2}$ c) $-\sqrt{6}$ d) 1</p>
2.	$\sqrt{\frac{3}{4} + \frac{4}{3}} : \left(1 - \frac{1}{9}\right) = \sqrt{\frac{3}{4} + \frac{4}{3}} : \frac{9-1}{9} = \sqrt{\frac{3}{4} + \frac{4}{3}} : \frac{8}{9} = \sqrt{\frac{3}{4} + \frac{4}{3}} \cdot \frac{9}{8} = \sqrt{\frac{3+6}{4}} = \sqrt{\frac{9}{4}} = \frac{3}{2}.$
	<p>a) $\frac{5}{4}$ b) $\frac{3}{2}$ c) $\frac{2}{3}$ d) 1</p>
3.	$\frac{5}{12} + \left[\frac{1}{5} - \left(\frac{1}{9} + \frac{2}{3}\right)\right] \cdot \frac{5}{13} = \frac{5}{12} + \left[\frac{1}{5} - \frac{1+6}{9}\right] \cdot \frac{5}{13} = \frac{5}{12} + \left(\frac{1}{5} - \frac{7}{9}\right) \cdot \frac{5}{13} = \frac{5}{12} + \frac{9-35}{45} \cdot \frac{5}{13} =$ $= \frac{5}{12} - \frac{26}{45} \cdot \frac{5}{13} = \frac{5}{12} - \frac{2}{9} = \frac{15-8}{36} = \frac{7}{36}.$
	<p>a) $\frac{23}{36}$ b) $\frac{7}{36}$ c) $\frac{1}{9}$ d) 1</p>
4.	$\left(\sqrt[6]{\sqrt[3]{a^3}}\right)^{12} : \left(\sqrt[6]{\sqrt{a^2}}\right)^{12} = \left(\sqrt[6]{a}\right)^{12} : \left(\sqrt[6]{a}\right)^{12} = 1.$
	<p>a) a^2 b) a c) $\frac{1}{a}$ d) 1</p>
5.	$7x - 2y = 13 \quad / \cdot 3$ $2x + 3y = -7 \quad / \cdot 2$ $21x - 6y = 39$ $4x + 6y = -14$ $25x = 25 \Rightarrow x = 1$ $2 + 3y = -7 \Rightarrow 3y = -9 \quad y = -3$ $x \cdot y = -3$
	<p>a) -1 b) 1 c) 3 d) -3</p>
6.	$2x^2 + 4x + 8 = 0$ <p><i>Za rješenja kvadratne jednačine $ax^2 + bx + c = 0$ vrijedi da je njihov zbir: $x_1 + x_2 = -\frac{b}{a}$.</i></p> $x_1 + x_2 = -\frac{-4}{2} = -2.$
	<p>a) 2 b) $\frac{\sqrt{3}}{2}$ c) -2 d) $\frac{17}{4}$</p>

7.	$\frac{2x-3}{3x+2} \leq 0$ <p><i>D.p.:</i> $3x+2 \neq 0 \Rightarrow x \neq -\frac{2}{3}$</p> $\frac{2x-3}{3x+2} \leq 0$ $x \in \left(-\frac{2}{3}, \frac{3}{2}\right].$	$-\infty \quad -\frac{2}{3} \quad \frac{3}{2} \quad +\infty$ <table border="1" data-bbox="753 215 1161 331"> <tr> <td>$2x-3$</td> <td>-</td> <td>-</td> <td>+</td> </tr> <tr> <td>$3x+2$</td> <td>-</td> <td>+</td> <td>+</td> </tr> <tr> <td>R</td> <td>+</td> <td>-</td> <td>+</td> </tr> </table>	$2x-3$	-	-	+	$3x+2$	-	+	+	R	+	-	+
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	a) $\left(\frac{1}{2}, \frac{2}{3}\right]$	b) $\left(-\frac{2}{3}, \frac{3}{2}\right]$	c) $\left(\frac{1}{2}, 1\right]$	d) $\left[-\frac{1}{2}, \frac{2}{3}\right)$										
8.	$ Z = \frac{ 3+4i }{ 1-2i } = \frac{ 3+4i }{\sqrt{1^2+(-2)^2}} = \frac{\sqrt{(3)^2+(4)^2}}{\sqrt{1+4}} = \frac{\sqrt{9+16}}{\sqrt{5}} = \frac{\sqrt{25}}{\sqrt{5}} = \frac{5}{\sqrt{5}} = \sqrt{5}.$													
	a) $2\sqrt{5}$	b) $\sqrt{5}$	c) 5	d) 1										
9.	$\sin x = \frac{\sqrt{2}}{2}$ $x_1 = \frac{\pi}{4} + 2k\pi \Rightarrow x_1 = \frac{\pi}{4} + 2k\pi$ $x_1 = \frac{\pi}{4} \notin \left[\frac{\pi}{2}, \pi\right]$ $x_2 = \frac{3\pi}{4} + 2k\pi \Rightarrow x_2 = \frac{2\pi}{3} + 2k\pi$ $x_2 = \frac{3\pi}{4} \in \left[\frac{\pi}{2}, \pi\right]$ <p><i>Rješenje jednačine:</i> $\frac{3\pi}{4}$.</p>													
	a) $\frac{\pi}{4}$	b) $\frac{2\pi}{3}$	c) $\frac{3\pi}{4}$	d) $\frac{4\pi}{5}$										
10.	<p><i>Dijagonala d kvadrata stranice a je:</i></p> $d = a\sqrt{2} \Rightarrow a = 6.$ <p><i>Površina kvadrata je:</i></p> $P = a^2 = 36.$													
	a) 36	b) 9	c) 18	d) 12										

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora. Zaokružite slovo ispred tačnog odgovora. Svaki zadatak nosi 4 boda. Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda. U ostalim slučajevima zadatak ne nosi bodove.

1.	Ako je $a = \frac{\sqrt{2}+3}{2}$ i $b = \frac{\sqrt{2}-3}{2}$, onda je $a^2 - b^2$:
	a) $3\sqrt{2}$ b) $\frac{5}{2}$ c) $-\sqrt{2}$ d) 1
2.	Vrijednost izraza $\sqrt{\frac{3}{4} + \frac{4}{3} : \left(1 - \frac{1}{3}\right)}$ je:
	a) $\frac{\sqrt{3}}{2}$ b) $\frac{3}{2}$ c) $\frac{\sqrt{11}}{2}$ d) 1
3.	Vrijednost izraza $\frac{5}{4} + \left[\frac{1}{5} - \left(\frac{1}{9} + \frac{2}{3}\right)\right] \cdot \frac{5}{2}$ je:
	a) $\frac{13}{36}$ b) $-\frac{7}{36}$ c) $\frac{1}{9}$ d) 1
4.	Koliko iznosi parametar a ako pravac $y = 5x - a$ prolazi kroz tačku (1,2)?
	a) -2 b) 3 c) $\frac{1}{2}$ d) 1
5.	Proizvod rješenja sistema $3x - 2y = 9$ i $2x + 3y = -7$ je:
	a) -1 b) 1 c) 3 d) -3
6.	Zbir rješenja jednačine $2x^2 - 8x + 8 = 0$ je:
	a) 4 b) $\frac{\sqrt{3}}{2}$ c) -2 d) $\frac{17}{4}$
7.	Skup rješenja nejednačine $\frac{2x-3}{3x-2} \leq 0$ je:
	a) $\left(\frac{1}{2}, \frac{2}{3}\right]$ b) $\left(\frac{2}{3}, \frac{3}{2}\right]$ c) $\left(\frac{1}{2}, 1\right]$ d) $\left[-\frac{1}{2}, \frac{2}{3}\right)$
8.	Modul kompleksnog broja $Z = 1 + 5i$ je:
	a) $2\sqrt{5}$ b) $\sqrt{26}$ c) 2 d) 1
9.	Ako je $\sin x = \frac{\sqrt{2}}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$:
	a) $\frac{\pi}{4}$ b) $\frac{2\pi}{3}$ c) $\frac{3\pi}{4}$ d) $\frac{4\pi}{5}$
10.	Dijagonala kvadrata je $d = 3\sqrt{2}$. Koliko iznosi površina kvadrata?
	a) 4 b) 9 c) 6 d) 12

1.	$a^2 - b^2 = \left(\frac{\sqrt{2}+3}{2}\right)^2 - \left(\frac{\sqrt{2}-3}{2}\right)^2 = \frac{2+6\sqrt{2}+9}{4} - \frac{2-6\sqrt{2}+9}{4} = \frac{2+6\sqrt{2}-2+6\sqrt{2}}{4} = \frac{12\sqrt{2}}{4} = 3\sqrt{2}.$
	<p>a) $3\sqrt{2}$ b) $\frac{5}{2}$ c) $-\sqrt{5}$ d) 1</p>
2.	$\sqrt{\frac{3}{4} + \frac{4}{3}} : \left(1 - \frac{1}{3}\right) = \sqrt{\frac{3}{4} + \frac{4}{3}} : \frac{3-1}{3} = \sqrt{\frac{3}{4} + \frac{4}{3}} : \frac{2}{3} = \sqrt{\frac{3}{4} + 2} = \sqrt{\frac{3+8}{4}} = \sqrt{\frac{11}{4}} = \frac{\sqrt{11}}{2}.$
	<p>a) $\frac{\sqrt{3}}{2}$ b) $\frac{3}{2}$ c) $\frac{\sqrt{11}}{2}$ d) 1</p>
3.	$\frac{5}{4} + \left[\frac{1}{5} - \left(\frac{1}{9} + \frac{2}{3}\right)\right] \cdot \frac{5}{2} = \frac{5}{4} + \left[\frac{1}{5} - \frac{1+6}{9}\right] \cdot \frac{5}{2} = \frac{5}{4} + \left(\frac{1}{5} - \frac{7}{9}\right) \cdot \frac{5}{2} = \frac{5}{4} + \frac{9-35}{45} \cdot \frac{5}{2} = \frac{5}{4} - \frac{26}{45} \cdot \frac{5}{2} = \frac{5}{4} - \frac{13}{9} = \frac{45-52}{36} = -\frac{7}{36}.$
	<p>a) $\frac{13}{36}$ b) $-\frac{7}{36}$ c) $\frac{1}{9}$ d) 1</p>
4.	<p>Nakon uvrštavanja koordinata tačke (1,2) u jednačinu pravca, dobija se: $y = 5x - a \Rightarrow 2 = 5 - a \Rightarrow a = 3$</p>
	<p>a) -2 b) 3 c) $\frac{1}{2}$ d) 1</p>
5.	$3x - 2y = 9 \quad / \cdot 3$ $2x + 3y = -7 \quad / \cdot 2$ $9x - 6y = 27$ $4x + 6y = -14$ $13x = 13 \Rightarrow x = 1$ $2 + 3y = -7 \Rightarrow 3y = -9 \quad y = -3$ $x \cdot y = -3$
	<p>a) -1 b) 1 c) 3 d) -3</p>
6.	$2x^2 - 8x + 8 = 0$ <p>Za rješenja kvadratne jednačine $ax^2 + bx + c = 0$ vrijedi da je njihov zbir: $x_1 + x_2 = -\frac{b}{a}$.</p> $x_1 + x_2 = -\frac{-8}{2} = 4.$
	<p>a) 4 b) $\frac{\sqrt{3}}{2}$ c) -2 d) $\frac{17}{4}$</p>

	$\frac{2x-3}{3x-2} \leq 0$ $D.p.: 3x-2 \neq 0 \Rightarrow x \neq \frac{2}{3}$ <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>$-\infty$</th> <th>$\frac{2}{3}$</th> <th>$\frac{3}{2}$</th> <th>$+\infty$</th> </tr> </thead> <tbody> <tr> <td>$2x-3$</td> <td>-</td> <td>-</td> <td>+</td> <td></td> </tr> <tr> <td>$3x-2$</td> <td>-</td> <td>+</td> <td>+</td> <td></td> </tr> <tr> <td>R</td> <td>+</td> <td>-</td> <td>+</td> <td></td> </tr> </tbody> </table>		$-\infty$	$\frac{2}{3}$	$\frac{3}{2}$	$+\infty$	$2x-3$	-	-	+		$3x-2$	-	+	+		R	+	-	+	
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	a) $\left(\frac{1}{2}, \frac{2}{3}\right]$ b) $\left(\frac{2}{3}, \frac{3}{2}\right]$ c) $\left(\frac{1}{2}, 1\right]$ d) $\left[-\frac{1}{2}, \frac{2}{3}\right)$																				
8.	$ Z = 1+5i = \sqrt{(1)^2 + (5)^2} = \sqrt{1+25} = \sqrt{26}$																				
	a) $2\sqrt{5}$ b) $\sqrt{26}$ c) 2 d) 1																				
9.	$\sin x = \frac{\sqrt{2}}{2}$ $x_1 = \frac{\pi}{4} + 2k\pi \Rightarrow x_1 = \frac{\pi}{4} + 2k\pi$ $x_1 = \frac{\pi}{4} \in \left[0, \frac{\pi}{2}\right]$ <p>Rješenje jednačine: $\frac{\pi}{4}$.</p>																				
	a) $\frac{\pi}{4}$ b) $\frac{2\pi}{3}$ c) $\frac{3\pi}{4}$ d) $\frac{4\pi}{5}$																				
10.	<p>Dijagonala d kvadrata stranice a je:</p> $d = a\sqrt{2} \Rightarrow a = 3.$ <p>Površina kvadrata je:</p> $P = a^2 = 9.$																				
	a) 4 b) 9 c) 6 d) 12																				

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora. Zaokružite slovo ispred tačnog odgovora. Svaki zadatak nosi 4 boda. Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda. U ostalim slučajevima zadatak ne nosi bodove.

1.	Vrijednost izraza $\sqrt{\frac{25}{16} - \frac{5}{3} \cdot \left(2 - \frac{1}{3}\right)}$ je:
	a) $\frac{5}{3}$ b) $\frac{5}{4}$ c) $\frac{5}{2}$ d) 1
2.	Ako je $a = \frac{\sqrt{2}-1}{2}$ i $b = \frac{\sqrt{2}+1}{2}$, onda je $a^2 + b^2$:
	a) $\sqrt{2}$ b) $\frac{3}{4}$ c) $\frac{3}{2}$ d) $2\sqrt{2}$
3.	Vrijednost izraza $\frac{13}{18} - \left[\frac{1}{9} - \left(\frac{1}{6} - \frac{2}{3}\right)\right] \cdot \frac{7}{11}$ je:
	a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{1}{6}$ d) 1
4.	Vrijednost izraza $\left(\sqrt[6]{a^3}\right)^8 : \left(\sqrt[6]{\sqrt[3]{a^9}}\right)^2$ je:
	a) a^2 b) \sqrt{a} c) a d) a^3
5.	Zbir rješenja sistema $5x - 2y = 1$ i $4x - y = 2$ je:
	a) -3 b) 3 c) 2 d) 1
6.	Proizvod realnih rješenja jednačine $x^2 - 6x + 5 = 0$ je:
	a) 5 b) $\frac{5}{6}$ c) 6 d) $-\frac{5}{6}$
7.	Modul kompleksnog broja $Z = \frac{1+3i}{2+i}$ je:
	a) 1 b) $\sqrt{10}$ c) $\sqrt{2}$ d) $2\sqrt{2}$
8.	Skup realnih rješenja nejednačine $\frac{x-3}{2x-3} \geq 1$ je:
	a) $\left[-\frac{3}{2}, 0\right)$ b) $\left[-3, -\frac{3}{2}\right)$ c) $\left[\frac{3}{2}, 3\right)$ d) $\left[0, \frac{3}{2}\right)$
9.	Koliko iznosi $\sin x$ ako je $\cos x = \frac{\sqrt{3}}{2}$ i $x \in \left[0, \frac{\pi}{2}\right]$?
	a) $\frac{\sqrt{3}}{2}$ b) $\frac{1}{2}$ c) $\frac{\sqrt{2}}{2}$ d) 1
10.	Koliko iznosi površina pravougaonika stranice $a=3$ i dijagonale $d=5$?
	a) 12 b) 8 c) 16 d) 24

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.
Zakružite slovo ispred tačnog odgovora.
Svaki zadatak nosi 4 boda.
Samo zakruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
U ostalim slučajevima zadatak ne nosi bodove.

1.	$\sqrt{\frac{25}{16} - \frac{5}{3} \cdot \left(2 - \frac{1}{3}\right)} = \sqrt{\frac{25}{16} - \frac{5}{3} \cdot \frac{6-1}{3}} = \sqrt{\frac{25}{16} - \frac{5}{3} \cdot \frac{5}{3}} = \sqrt{\frac{25}{16} - 1} = \sqrt{\frac{25-16}{16}} = \sqrt{\frac{9}{16}} = \frac{3}{4}$
	a) $\frac{5}{3}$ b) $\frac{5}{4}$ c) $\frac{5}{2}$ d) $\frac{3}{4}$
2.	$a^2 + b^2 = \left(\frac{\sqrt{2}-1}{2}\right)^2 + \left(\frac{\sqrt{2}+1}{2}\right)^2 = \frac{2-2\sqrt{2}+1}{4} + \frac{2+2\sqrt{2}+1}{4} = \frac{6}{4} = \frac{3}{2}$
	a) $\sqrt{2}$ b) $\frac{3}{4}$ c) $\frac{3}{2}$ d) $2\sqrt{2}$
3.	$\frac{13}{18} - \left[\frac{1}{9} - \left(\frac{1}{6} - \frac{2}{3}\right)\right] \cdot \frac{7}{11} = \frac{13}{18} - \left(\frac{1}{9} - \frac{1-4}{6}\right) \cdot \frac{7}{11} = \frac{13}{18} - \left(\frac{1}{9} + \frac{3}{6}\right) \cdot \frac{7}{11} =$ $\frac{13}{18} - \frac{2+9}{18} \cdot \frac{7}{11} = \frac{13}{18} - \frac{7}{18} = \frac{6}{18} = \frac{1}{3}$
	a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{1}{6}$ d) 1
4.	$\left(\sqrt[6]{a^3}\right)^8 : \left(\sqrt[6]{a^9}\right)^2 = (a^{3 \cdot 8})^{\frac{1}{6 \cdot 2}} : (a^{9 \cdot 2})^{\frac{1}{6 \cdot 3}} = a^2 : a = a$
	a) a^2 b) \sqrt{a} c) a d) a^3
5.	$\begin{aligned} 5x - 2y &= 1 \\ 4x - y &= 2 \quad / \cdot (-2) \\ 5x - 2y &= 1 \\ -8x + 2y &= -4 \\ \hline -3x &= -3 \\ x &= 1 \\ 5 \cdot 1 - 2y &= 1 \\ -2y &= 1 - 5 \\ -2y &= -4 \\ y &= 2 \\ x + y &= 1 + 2 = 3 \end{aligned}$
	a) -3 b) 3 c) 2 d) 1
6.	$x^2 - 6x + 5 = 0$ <i>Za kvadratnu jednačinu $ax^2 + bx + c = 0$ po Viettovim pravi lim a proizvod rješenja :</i> $x_1 \cdot x_2 = \frac{c}{a} \Rightarrow x_1 \cdot x_2 = \frac{5}{1} = 5$
	a) 5 b) $\frac{5}{6}$ c) 6 d) $-\frac{5}{6}$
7.	$ Z = \left \frac{1+3i}{2+i} \right = \frac{\sqrt{1^2+3^2}}{\sqrt{2^2+1^2}} = \frac{\sqrt{10}}{\sqrt{5}} = \sqrt{2}$
	a) 1 b) $\sqrt{10}$ c) $\sqrt{2}$ d) $2\sqrt{2}$

8.	$\frac{x-3}{2x-3} \geq 1; DP: 2x-3 \neq 0 \Rightarrow x \neq \frac{3}{2}$ $\frac{x-3}{2x-3} - 1 \geq 0$ $\frac{x-3-2x+3}{2x-3} \geq 0$ $\frac{-x}{2x-3} \geq 0$ $\frac{x}{2x-3} \leq 0$ $x \in \left[0, \frac{3}{2}\right)$	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">$-\infty$</td> <td style="text-align: center;">0</td> <td style="text-align: center;">$\frac{3}{2}$</td> <td style="text-align: center;">$+\infty$</td> </tr> <tr> <td style="text-align: center;">x</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> <td></td> </tr> <tr> <td style="text-align: center;">$2x-3$</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">+</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> <td></td> </tr> </table>		$-\infty$	0	$\frac{3}{2}$	$+\infty$	x	-	+	+		$2x-3$	-	-	+			+	-	+	
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9.	$\sin^2 x + \cos^2 x = 1$ $\sin x = \pm \sqrt{1 - \cos^2 x} = \pm \sqrt{1 - \left(\frac{\sqrt{3}}{2}\right)^2} = \pm \sqrt{1 - \frac{3}{4}} = \pm \sqrt{\frac{1}{4}} = \pm \frac{1}{2} \text{ i } x \in \left[0, \frac{\pi}{2}\right]?$ <p><i>U I kvadrantu $\sin x \geq 0$, te slijedi :</i></p> $\sin x = \frac{1}{2}$																					
	a) $\frac{\sqrt{3}}{2}$	b) $\frac{1}{2}$	c) $\frac{\sqrt{2}}{2}$	d) 1																		
10.	$a^2 + b^2 = d^2$ $b = \sqrt{d^2 - a^2} = 4$ $P = a \cdot b = 12$																					
	a) 12	b) 8	c) 16	d) 24																		

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.

Zaokružite slovo ispred tačnog odgovora.

Svaki zadatak nosi 4 boda.

Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.

U ostalim slučajevima zadatak ne nosi bodove.

1.	Vrijednost izraza $\sqrt{\frac{9}{16} + \frac{11}{3} : \left(3 + \frac{2}{3}\right)}$ je:
	a) 1 b) $\frac{3}{4}$ c) 2 d) $\frac{5}{4}$
2.	Ako je $a = \frac{\sqrt{3} - \sqrt{2}}{2}$ i $b = \frac{\sqrt{3} + \sqrt{2}}{2}$, onda je $a^2 + b^2$:
	a) $\frac{5}{2}$ b) $\sqrt{6}$ c) $2\sqrt{6}$ d) $-2\sqrt{6}$
3.	Vrijednost izraza $\frac{11}{18} + \left[\frac{1}{3} + \left(\frac{1}{9} - \frac{1}{6}\right)\right] \cdot \frac{7}{5}$ je:
	a) $\frac{1}{2}$ b) 1 c) $\frac{17}{18}$ d) $\frac{1}{3}$
4.	Vrijednost izraza $\left(\sqrt[3]{a^4}\right)^3 : \left(\sqrt[4]{a^3}\right)^4$ je:
	a) \sqrt{a} b) $\sqrt{a^3}$ c) a d) $\sqrt[3]{a^2}$
5.	Zbir rješenja sistema $2x + y = 1$ i $x - 2y = 3$ je:
	a) 0 b) -1 c) 2 d) 1
6.	Proizvod realnih rješenja jednačine $2x^2 + 3x - 2 = 0$ je:
	a) 1 b) $-\frac{3}{2}$ c) $\frac{3}{2}$ d) -1
7.	Skup realnih rješenja nejednačine $x^2 - 3x < -2$ je:
	a) $(-2, -1)$ b) $(1, 2)$ c) $(-1, 1)$ d) $(2, +\infty)$
8.	Modul kompleksnog broja $Z = 3 + i$ je:
	a) $\sqrt{10}$ b) $\sqrt{5}$ c) $\sqrt{2}$ d) 1
9.	Koliko iznosi x ako je $\sin x = \frac{1}{2}$?
	a) $\frac{\pi}{4}$ b) $\frac{\pi}{2}$ c) $\frac{\pi}{6}$ d) $\frac{\pi}{3}$
10.	Vrijednosti hipotenuze i jedne katete pravouglog trougla su $c=5$ i $a=4$. Koliko iznosi druga kateta b ?
	a) 2 b) 3 c) 1 d) 4
NAPOMENA	<p>Poslije svakog zadatka ponuđena su četiri odgovora. Zaokružite slovo ispred tačnog odgovora. Svaki zadatak nosi 4 boda. Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda. U ostalim slučajevima zadatak ne nosi bodove.</p>

8.	$Z = 3 + i$ $ Z = 3 + i = \sqrt{3^2 + 1^2} = \sqrt{10}$
	a) $\sqrt{10}$ b) $\sqrt{5}$ c) $\sqrt{2}$ d) 1
9.	$\sin x = \frac{1}{2} \Rightarrow x = \arcsin \frac{1}{2} = \frac{\pi}{6}$
	a) $\frac{\pi}{4}$ b) $\frac{\pi}{2}$ c) $\frac{\pi}{6}$ d) $\frac{\pi}{3}$
10.	$a = 4 \wedge c = 5$ $b = \sqrt{c^2 - a^2} = 3$
	a) 2 b) 3 c) 1 d) 4
NAPOMENA	<p>Poslije svakog zadatka ponuđena su četiri odgovora. Zaokružite slovo ispred tačnog odgovora. Svaki zadatak nosi 4 boda. Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda. U ostalim slučajevima zadatak ne nosi bodove.</p>

1.	Ako je $a = \frac{\sqrt{3}+2}{2}$ i $b = \frac{\sqrt{3}-2}{2}$, onda je $a^2 - b^2$:
	a) $\frac{3}{2}$ b) $2\sqrt{3}$ c) $-\sqrt{3}$ d) 1
2.	Vrijednost izraza $\sqrt{\frac{3}{4} + \frac{4}{3} : \left(1 - \frac{1}{3}\right)}$ je:
	a) $\frac{\sqrt{3}}{2}$ b) $\frac{3}{2}$ c) $\frac{\sqrt{11}}{2}$ d) 1
3.	Vrijednost izraza $\frac{5}{2} + \left[\frac{1}{5} - \left(\frac{1}{9} + \frac{2}{3}\right)\right] \cdot \frac{5}{4}$ je:
	a) $\frac{13}{36}$ b) $-\frac{7}{18}$ c) $\frac{16}{9}$ d) 1
4.	Koliko iznosi parametar a ako pravac $y = 3x - a$ prolazi kroz tačku (1,2)?
	a) -2 b) 3 c) $\frac{1}{2}$ d) 1
5.	Proizvod rješenja sistema $5x - 2y = 7$ i $x + 3y = -2$ je:
	a) -1 b) 1 c) 3 d) -3
6.	Zbir rješenja jednačine $x^2 - 2x + 4 = 0$ je:
	a) 4 b) $\frac{\sqrt{3}}{2}$ c) 2 d) $\frac{15}{4}$
7.	Skup rješenja nejednačine $\frac{2x-3}{3x-2} \leq 0$ je:
	a) $\left(\frac{1}{2}, \frac{2}{3}\right]$ b) $\left(\frac{2}{3}, \frac{3}{2}\right]$ c) $\left(\frac{1}{2}, 1\right]$ d) $\left[-\frac{1}{2}, \frac{2}{3}\right)$
8.	Modul kompleksnog broja $Z = 2 - 3i$ je:
	a) $2\sqrt{3}$ b) $\sqrt{13}$ c) 2 d) 1
9.	Ako je $\sin x = \frac{\sqrt{3}}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$:
	a) $\frac{\pi}{3}$ b) $\frac{\pi}{4}$ c) $\frac{5\pi}{6}$ d) $\frac{2\pi}{3}$
10.	Dijagonala kvadrata je $d = 3\sqrt{2}$. Koliko iznosi površina kvadrata?
	a) 4 b) 9 c) 6 d) 2

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.
 Zaokružite slovo ispred tačnog odgovora.
 Svaki zadatak nosi 4 boda.
 Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
 U ostalim slučajevima zadatak ne nosi bodove.

1.	$a^2 - b^2 = \left(\frac{\sqrt{3}+2}{2}\right)^2 - \left(\frac{\sqrt{3}-2}{2}\right)^2 = \frac{3+4\sqrt{3}+4}{4} - \frac{3-4\sqrt{3}+4}{4} = \frac{3+4\sqrt{3}+4-3+4\sqrt{3}-4}{4} = \frac{8\sqrt{3}}{4} = 2\sqrt{3}.$
	a) $\frac{3}{2}$ b) $2\sqrt{3}$ c) $-\sqrt{3}$ d) 1
2.	$\sqrt{\frac{3}{4} + \frac{4}{3}} : \left(1 - \frac{1}{3}\right) = \sqrt{\frac{3}{4} + \frac{4}{3}} : \frac{3-1}{3} = \sqrt{\frac{3}{4} + \frac{4}{3}} : \frac{2}{3} = \sqrt{\frac{3}{4} + 2} = \sqrt{\frac{3+8}{4}} = \sqrt{\frac{11}{4}} = \frac{\sqrt{11}}{2}.$
	a) $\frac{\sqrt{3}}{2}$ b) $\frac{3}{2}$ c) $\frac{\sqrt{11}}{2}$ d) 1
3.	$\frac{5}{2} + \left[\frac{1}{5} - \left(\frac{1}{9} + \frac{2}{3}\right)\right] \cdot \frac{5}{4} = \frac{5}{2} + \left[\frac{1}{5} - \frac{1+6}{9}\right] \cdot \frac{5}{4} = \frac{5}{2} + \left(\frac{1}{5} - \frac{7}{9}\right) \cdot \frac{5}{4} = \frac{5}{2} + \frac{9-35}{45} \cdot \frac{5}{4} =$ $= \frac{5}{2} - \frac{26}{45} \cdot \frac{5}{4} = \frac{5}{2} - \frac{13}{18} = \frac{45-13}{18} = \frac{32}{18} = \frac{16}{9}.$
	a) $\frac{16}{9}$ b) $\frac{7}{18}$ c) $\frac{13}{36}$ d) 1
4.	<p>Nakon uvrštavanja koordinata tačke (1,2) u jednačinu pravca, dobija se: $y = 3x - a \Rightarrow 2 = 3 - a \Rightarrow a = 1$</p>
	a) -2 b) 3 c) $\frac{1}{2}$ d) 1
5.	$5x - 2y = 7 \quad / \cdot 3$ $x + 3y = -2 \quad / \cdot 2$ $15x - 6y = 21$ $2x + 6y = -4$ $17x = 17 \Rightarrow x = 1$ $1 + 3y = -2 \Rightarrow 3y = -3 \Rightarrow y = -1$ $x \cdot y = -1$
	a) -1 b) 1 c) 3 d) -3
6.	$x^2 - 2x + 4 = 0$ <p>Za rješenja kvadratne jednačine $ax^2 + bx + c = 0$ vrijedi da je njihov zbir: $x_1 + x_2 = -\frac{b}{a}$.</p> $x_1 + x_2 = -\frac{-2}{1} = 2.$
	a) 4 b) $\frac{\sqrt{3}}{2}$ c) 2 d) $\frac{15}{4}$

7.	$\frac{2x-3}{3x-2} \leq 0$ $D.p.: 3x-2 \neq 0 \Rightarrow x \neq \frac{2}{3}$ <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">$-\infty$</td> <td style="text-align: center;">$\frac{2}{3}$</td> <td style="text-align: center;">$\frac{3}{2}$</td> <td style="text-align: center;">$+\infty$</td> </tr> <tr> <td style="text-align: center;">$2x-3$</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> </tr> <tr> <td style="text-align: center;">$3x-2$</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> </tr> <tr> <td style="text-align: center;">R</td> <td style="text-align: center;">+</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> </tr> </table> $\frac{2x-3}{3x-2} \leq 0$ $x \in \left(\frac{2}{3}, \frac{3}{2}\right]$	$-\infty$	$\frac{2}{3}$	$\frac{3}{2}$	$+\infty$	$2x-3$	-	-	+	$3x-2$	-	+	+	R	+	-	+
$-\infty$	$\frac{2}{3}$	$\frac{3}{2}$	$+\infty$														
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NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora. Zaokružite slovo ispred tačnog odgovora. Svaki zadatak nosi 4 boda. Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda. U ostalim slučajevima zadatak ne nosi bodove.

1.	Ako je $a = \frac{\sqrt{3}+2}{2}$ i $b = \frac{\sqrt{3}-2}{2}$, onda je $a^2 - b^2$:
	a) $\frac{3}{2}$ b) $2\sqrt{3}$ c) $-\sqrt{3}$ d) 1
2.	Vrijednost izraza $\sqrt{\frac{3}{4} + \frac{1}{3} : \left(1 - \frac{2}{3}\right)}$ je:
	a) $\frac{\sqrt{3}}{2}$ b) $\frac{3}{2}$ c) $\frac{\sqrt{7}}{2}$ d) 1
3.	Vrijednost izraza $\frac{3}{2} + \left[\frac{1}{5} - \left(\frac{1}{3} + \frac{2}{9}\right)\right] \cdot \frac{5}{2}$ je:
	a) $\frac{11}{18}$ b) $-\frac{7}{18}$ c) $\frac{16}{9}$ d) 1
4.	Koliko iznosi parametar a ako pravac $y = 2x - a$ prolazi kroz tačku (1,4)?
	a) 1 b) -2 c) $\frac{1}{2}$ d) 4
5.	Proizvod rješenja sistema $5x - 2y = 7$ i $x + 3y = -2$ je:
	a) -1 b) 1 c) 3 d) -3
6.	Proizvod rješenja jednačine $x^2 - 2x + 5 = 0$ je:
	a) 2 b) $\frac{\sqrt{3}}{2}$ c) 4 d) $\frac{5}{2}$
7.	Skup rješenja nejednačine $\frac{x-3}{2x-1} \leq 0$ je:
	a) $\left(\frac{1}{2}, \frac{2}{3}\right]$ b) $\left(\frac{1}{2}, 3\right]$ c) $\left(\frac{1}{2}, 1\right]$ d) $\left[-\frac{1}{2}, \frac{2}{3}\right)$
8.	Modul kompleksnog broja $Z = -2 + 3i$ je:
	a) $2\sqrt{3}$ b) 1 c) 2 d) $\sqrt{13}$
9.	Ako je $\sin x = \frac{\sqrt{2}}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$:
	a) $\frac{\pi}{3}$ b) $\frac{\pi}{4}$ c) $\frac{5\pi}{6}$ d) $\frac{2\pi}{3}$
10.	Dijagonala kvadrata je $d = 3\sqrt{2}$. Koliko iznosi obim kvadrata?
	a) 12 b) 9 c) 6 d) 4

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.
 Zaokružite slovo ispred tačnog odgovora.
 Svaki zadatak nosi 4 boda.
 Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
 U ostalim slučajevima zadatak ne nosi bodove.

1.	$a^2 - b^2 = \left(\frac{\sqrt{8}+2}{2}\right)^2 - \left(\frac{\sqrt{8}-2}{2}\right)^2 = \frac{8+4\sqrt{8}+4}{4} - \frac{8-4\sqrt{8}+4}{4} = \frac{8+4\sqrt{8}+4-8+4\sqrt{8}-4}{4} = \frac{8\sqrt{8}}{4} = 2\sqrt{3}.$ <p>a) $\frac{3}{2}$ b) $2\sqrt{3}$ c) $-\sqrt{3}$ d) 1</p>																				
2.	$\sqrt{\frac{3}{4} + \frac{1}{3} \cdot \left(1 - \frac{2}{3}\right)} = \sqrt{\frac{3}{4} + \frac{1}{3} \cdot \frac{3-2}{3}} = \sqrt{\frac{3}{4} + \frac{1}{3} \cdot \frac{1}{3}} = \sqrt{\frac{3}{4} + 1} = \sqrt{\frac{3+4}{4}} = \frac{\sqrt{7}}{2}$ <p>a) $\frac{\sqrt{3}}{2}$ b) $\frac{3}{2}$ c) $\frac{\sqrt{7}}{2}$ d) 1</p>																				
3.	$\frac{3}{2} + \left[\frac{1}{5} - \left(\frac{1}{3} + \frac{2}{9}\right)\right] \cdot \frac{5}{2} = \frac{3}{2} + \left[\frac{1}{5} - \left(\frac{3+2}{9}\right)\right] \cdot \frac{5}{2} = \frac{3}{2} + \left[\frac{1}{5} - \frac{5}{9}\right] \cdot \frac{5}{2} = \frac{3}{2} + \frac{9-25}{45} \cdot \frac{5}{2} =$ $\frac{3}{2} - \frac{16}{45} \cdot \frac{5}{2} = \frac{3}{2} - \frac{8}{9} = \frac{27-16}{18} = \frac{11}{18}$ <p>a) $\frac{11}{18}$ b) $-\frac{7}{18}$ c) $\frac{13}{36}$ d) 1</p>																				
4.	<p>Nakon uvrštavanja koordinata tačke (1,4) u jednačinu pravca, dobija se: $4 = 2 \cdot 1 - a \Rightarrow a = 2 - 4 \Rightarrow a = -2.$</p> <p>a) 1 b) -2 c) $\frac{1}{2}$ d) 4</p>																				
5.	$5x - 2y = 7 \quad / \cdot 3$ $x + 3y = -2 \quad / \cdot 2$ $15x - 6y = 21$ $2x + 6y = -4$ $17x = 17 \Rightarrow x = 1$ $1 + 3y = -2 \Rightarrow 3y = -3 \Rightarrow y = -1$ $x \cdot y = -1$ <p>a) -1 b) 1 c) 3 d) -3</p>																				
6.	$x^2 - 2x + 5 = 0$ <p>Za rješenja kvadratne jednačine $ax^2 + bx + c = 0$ vrijedi da je njihov proizvod: $x_1 \cdot x_2 = \frac{c}{a}$.</p> <p>Prema tome, imamo: $x_1 \cdot x_2 = \frac{5}{1} = 5$.</p> <p>a) 2 b) $\frac{\sqrt{3}}{2}$ c) 4 d) $\frac{5}{2}$</p>																				
7.	$\frac{x-3}{2x-1} \leq 0$ <p>D.p. $2x - 1 \neq 0 \Rightarrow x \neq \frac{1}{2}$</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">$-\infty$</td> <td style="text-align: center;">$\frac{1}{2}$</td> <td style="text-align: center;">3</td> <td style="text-align: center;">$+\infty$</td> </tr> <tr> <td style="text-align: center;">$x-3$</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> </tr> <tr> <td style="text-align: center;">$2x-1$</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> </tr> <tr> <td style="text-align: center;">R</td> <td style="text-align: center;">+</td> <td style="text-align: center;">-</td> <td style="text-align: center;">+</td> <td style="text-align: center;">+</td> </tr> </table> $\frac{x-3}{2x-1} \leq 0$ $x \in \left(\frac{1}{2}, 3\right]$		$-\infty$	$\frac{1}{2}$	3	$+\infty$	$x-3$	-	-	+	+	$2x-1$	-	+	+	+	R	+	-	+	+
	$-\infty$	$\frac{1}{2}$	3	$+\infty$																	
$x-3$	-	-	+	+																	
$2x-1$	-	+	+	+																	
R	+	-	+	+																	

	a) $\left(\frac{1}{2}, \frac{2}{3}\right]$	b) $\left(\frac{1}{2}, 3\right]$	c) $\left(\frac{1}{2}, 1\right]$	d) $\left[-\frac{1}{2}, \frac{2}{3}\right)$
8.	$ z = \sqrt{(-2)^2 + (3)^2} = \sqrt{4+9} = \sqrt{13}.$			
	a) $2\sqrt{3}$	b) 1	c) 2	d) $\sqrt{13}$
9.	$\sin x = \frac{\sqrt{2}}{2}$ $x_1 = \frac{\pi}{4} + 2k\pi \Rightarrow x_1 = \frac{\pi}{4} + 2k\pi$ $x_1 = \frac{\pi}{4} \in \left[0, \frac{\pi}{2}\right]$ Rješenje jednačine je: $\frac{\pi}{4}$.			
	a) $\frac{\pi}{3}$	b) $\frac{\pi}{4}$	c) $\frac{5\pi}{6}$	d) $\frac{2\pi}{3}$
10.	Dijagonala d kvadrata stranice a je: $d = a\sqrt{2} \Rightarrow a = 3.$ Obim kvadrata je: $P = 4 \cdot a = 12.$			
	a) 12	b) 9	c) 6	d) 4

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.
Zaokružite slovo ispred tačnog odgovora.
Svaki zadatak nosi 4 boda.
Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
U ostalim slučajevima zadatak ne nosi bodove.

1.	Ako je $a = \frac{\sqrt{3}+2}{2}$ i $b = \frac{\sqrt{3}-2}{2}$, onda je $(a - b)^2$:
	a) 4 b) $2\sqrt{3}$ c) $\frac{1}{2}$ d) 1
2.	Vrijednost izraza $\sqrt{\frac{2}{3} + \frac{1}{5} : \left(1 - \frac{2}{5}\right)}$ je:
	a) $\frac{\sqrt{3}}{2}$ b) $\frac{2}{5}$ c) $\frac{1}{3}$ d) 1
3.	Vrijednost izraza $\frac{3}{4} + \left[\frac{1}{5} - \left(\frac{1}{3} + \frac{2}{9}\right)\right] \cdot \frac{5}{4}$ je:
	a) $\frac{11}{18}$ b) $\frac{11}{36}$ c) $-\frac{16}{9}$ d) 1
4.	Koliko iznosi parametar a ako pravac $y = 2x - a$ prolazi kroz tačku (1,3)?
	a) 1 b) 2 c) -1 d) $\frac{1}{3}$
5.	Proizvod rješenja sistema $3x - 2y = 4$ i $2x + y = 5$ je:
	a) 2 b) 1 c) 3 d) -1
6.	Zbir rješenja jednačine $2x^2 - 3x + 5 = 0$ je:
	a) 2 b) $\frac{\sqrt{3}}{2}$ c) 4 d) $\frac{3}{2}$
7.	Skup rješenja nejednačine $\frac{x-3}{2x-1} \leq 0$ je:
	a) $\left(\frac{1}{2}, \frac{2}{3}\right]$ b) $\left(\frac{1}{2}, 3\right]$ c) $\left(\frac{1}{2}, 1\right]$ d) $\left[-\frac{3}{2}, 2\right)$
8.	Modul kompleksnog broja $Z = -5 - 5i$ je:
	a) $5\sqrt{2}$ b) 1 c) 5 d) $\sqrt{10}$
9.	Ako je $\cos x = \frac{\sqrt{2}}{2}$, odrediti x tako da $x \in \left[0, \frac{\pi}{2}\right]$.
	a) $\frac{\pi}{3}$ b) $\frac{\pi}{4}$ c) $\frac{5\pi}{6}$ d) $\frac{2\pi}{3}$
10.	Površina kvadrata je $P = 9$. Koliko iznosi dužina dijagonale kvadrata?
	a) 3 b) $2\sqrt{3}$ c) $3\sqrt{2}$ d) 6

NAPOMENA

Poslije svakog zadatka ponuđena su četiri odgovora.
 Zaokružite slovo ispred tačnog odgovora.
 Svaki zadatak nosi 4 boda.
 Samo zaokruženo tačno rješenje zadatka koje je potkrijepljeno izradom na pomoćnim papirima nosi 4 boda.
 U ostalim slučajevima zadatak ne nosi bodove.

1.	$(a - b)^2 = \left(\frac{\sqrt{3}+2}{2} - \frac{\sqrt{3}-2}{2}\right)^2 = \left(\frac{\sqrt{3}+2-\sqrt{3}+2}{2}\right)^2 = \left(\frac{4}{2}\right)^2 = 2^2 = 4.$																				
	a) 4 b) $2\sqrt{3}$ c) $\frac{1}{2}$ d) 1																				
2.	$\sqrt{\frac{2}{3} + \frac{1}{5} : \left(1 - \frac{2}{5}\right)} = \sqrt{\frac{2}{3} + \frac{1}{5} : \frac{5-2}{5}} = \sqrt{\frac{2}{3} + \frac{1}{5} : \frac{3}{5}} = \sqrt{\frac{2}{3} + \frac{1}{5} \cdot \frac{5}{3}} = \sqrt{\frac{2}{3} + \frac{1}{3}} = \sqrt{\frac{2+1}{3}} = 1$																				
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5.	$3x - 2y = 4$ $\underline{2x + y = 5 \quad / \cdot 2}$ $3x - 2y = 4$ $\underline{4x + 2y = 10}$ $7x = 14 \Rightarrow x = 2$ $4 + y = 5 \Rightarrow y = 1$ $x \cdot y = 2$																				
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	a) $\frac{\pi}{3}$ b) $\frac{\pi}{4}$ c) $\frac{5\pi}{6}$ d) $\frac{2\pi}{3}$
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	a) 3 b) $2\sqrt{3}$ c) $3\sqrt{2}$ d) 6

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