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۱۹,۲۵

Subject:
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درسا صادقی زاده - یازدهم دسته A

سوال ۱)

$y=(a-1)x^2+x+2 \quad x=2$

$x_s=2 \Rightarrow \frac{-b}{2a}=\frac{-1}{2a-2}=2 \Rightarrow 4a-4=-1$

$4a=3 \rightarrow a=\frac{3}{4} \rightarrow \frac{1}{4}x^2+x+2$

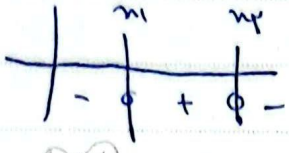
ج) $\Delta=1+3=4$

$x=\frac{-1\pm\sqrt{4}}{-\frac{1}{2}} \rightarrow x_1=-2$

$\hookrightarrow x_2=4$

سوال ۲)

$f(x)=mx^2-5x+m$



$m<0$ ① $\Delta>0 \quad 25-4m^2>0$ ②

$4m^2<25 \rightarrow m^2<\frac{25}{4}$

$-\frac{5}{2}<m<\frac{5}{2}$ ←

ج) ① ∩ ② $\rightarrow -\frac{5}{2}<m<0 \quad m\in(-\frac{5}{2},0)$

سوال ۳)

$y=x^2-5x+5$

$\frac{3+\sqrt{5}}{2}, \frac{3-\sqrt{5}}{2}$

(۱,۵)

$S: \frac{3+\sqrt{5}+3-\sqrt{5}}{2}=\frac{6}{2}=3$

$\frac{3+\sqrt{5}}{2}\times\frac{3-\sqrt{5}}{2}=\frac{9-5}{4}=1$

$y=x^2-2x+\frac{3}{4} \xrightarrow{\times 4}$ ضرایب صحیح

سوال ۴)

$2x^2-4x+m+2=0 \quad \alpha<\beta \quad 3\alpha^2+\beta^2=12$

$\alpha+\beta=2 \rightarrow \beta=2-\alpha$

ج)

$3\alpha^2+(2-\alpha)^2=12$

$3\alpha^2+\alpha^2+4-4\alpha-12=0$

$4\alpha^2-4\alpha-8=0 \rightarrow \alpha^2-\alpha-2=0$

$(\alpha-2)(\alpha+1)=0$

$\alpha=-1 \quad \beta=3$

$\frac{m+2}{2}=3 \rightarrow m=4$

Arman

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سوال ۵) $S(2,9)$ $(0,5)$ $y=ax^2+bx+c \xrightarrow{c=5}$

$(2,9)$ $-\frac{b}{2a}=2 \rightarrow 4a=-b$

$\rightarrow 4a+2b+5=9 \quad 2a+b=2 \rightarrow -2a=2 \rightarrow a=-1$ (۵)

$\underbrace{-b}_{-4a}$

$-x^2+4x+5>0$ $\rightarrow$ $(-1,5)$ بازه

	-1		5	
	$-$	$+$	$-$	

$a+c=b$

سوال ۶) $\alpha x^2-7x+9\beta=0$ $\frac{1}{\alpha}+\frac{1}{\beta}=?$ $\beta>0$

$9\beta=\frac{9\beta}{\alpha} \Rightarrow \alpha^2=9 \Rightarrow \alpha=\pm 3$ (۱,۷۵)

$\alpha=3 \rightarrow 3x^2-7x+9\beta=0 \rightarrow S=\underbrace{\frac{\alpha}{3}}_{1}+\beta=\frac{7}{3} \rightarrow \beta=-\frac{2}{3}$ ق ق ق ق

$\alpha=-3 \rightarrow -3x^2-7x+9\beta=0$ $\alpha+\beta=\underbrace{-\frac{7}{3}}_{-3} \rightarrow \beta=\frac{2}{3}$ ✓

$\frac{\alpha+\beta}{\alpha\beta}=\frac{-3+\frac{2}{3}}{\frac{2}{3}\times -3}=\frac{\frac{-7}{3}}{2}=+\frac{7}{6}$

سوال ۷) $x^2+mx-2m=0$ $\alpha^2-m\beta=8$

$\beta \hookrightarrow m\beta=2m-\beta^2$

$\alpha^2-2\beta+\beta^2=8$

$\underbrace{\alpha^2+\beta^2}_{S^2-2P}-2m=8 \Rightarrow m^2+2m-8=0$

$S^2-2P=m^2+4m \quad (m+4)(m-2)=0$

$\hookrightarrow m=-4, 2$

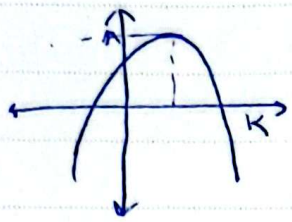
$m=2 \rightarrow x^2+2x-4=0 \rightarrow \Delta>0$ $\left(\frac{-b}{a}=-2\right)$ (۳)

$m=-4 \rightarrow x^2-4x+8 \rightarrow \Delta<0$ ×

Arman

سوال ۸

$f(x) = mx^2 + 4x + \frac{m}{2} + 7$



$-\frac{\Delta}{4a} = 8 \quad \frac{4ac-b^2}{4a} = \frac{2m^2+28m-14}{4m} = 8$

$2m^2 + 28m - 14 = 32m \qquad 2m^2 - 4m - 14 = 0$

$m^2 - 4m - 24 = 0$

$(m-8)(m+4) = 0$

$\hookrightarrow m = 4, -2$

$m=4 \rightarrow y = 4x^2 + 4x + 9 \rightarrow \Delta < 0$

$m=-2 \rightarrow y = -2x^2 + 4x + 4 \rightarrow \Delta > 0$

$x^2 + 4x - 12 = 0 \qquad (x+6)(x-2) = 0$

$\hookrightarrow x = 2, x = -6$

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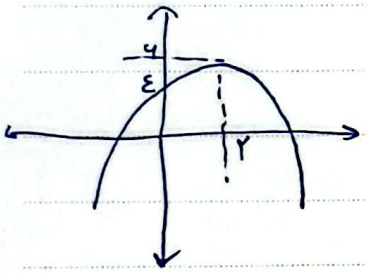
سوال ۹



$\frac{1}{\alpha} + \frac{1}{\beta} = ?$

$y = ax^2 + bx + c$ (c = 4)

$-\frac{b}{2a} = 2 \rightarrow 4a = -b$

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$(2, 4) \rightarrow 4a + 2b + 4 = 4 \quad 2a + b = 1 \rightarrow -2a = 1$ ($b = -4a$)

$a = -\frac{1}{2}$

$y = -\frac{1}{2}x^2 + 4x + 4$

$\frac{\alpha+\beta}{\alpha\beta} = \frac{-\frac{b}{a}}{\frac{c}{a}} = \frac{4}{-2} = -2 \rightarrow b = 4$

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سوال ۱۰

$n^2 - (\varepsilon a + \varepsilon) n + (3a^2 + 4a + 2) s.$

$n \le 2$

$\varepsilon - 8a - 8 + 3a^2 + 4a + 2 = 0$

$3a^2 - 4a - 4 = 0$ (5)

$\rightarrow a + b + c = 0 \Rightarrow a = 1, \; a = -\frac{1}{3}$

$a = 1 \longrightarrow n^2 - 8n + 12 = 0 \quad (n-2)(n-6) = 0 \rightarrow n = 2, 6$ (10)

$\hookrightarrow \Delta > 0$

$a = -\frac{1}{3} \longrightarrow n^2 - \frac{8}{3} n + \frac{4}{3} = 0 \quad \Delta = \frac{64}{9} - \frac{16}{3} = \frac{16}{9}$

$n = \frac{\frac{8}{3} \pm \frac{4}{3}}{2} \longrightarrow n = \left(\frac{2}{3}\right), 2$