زهرا جیحانی تالیف ۱۳ یازدهم تجربی

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$y=(a-1)x^2+x+3 \rightarrow -\frac{b}{2a}=2 \rightarrow \frac{-1}{2a-2}=2$

$4a-4=-1 \rightarrow 4a=3 \rightarrow a=\frac{3}{4}$

$y=0 \rightarrow -\frac{1}{4}x^2+x+3=0 \xrightarrow{\times 4} x^2-4x-12=0$

$(x-6)(x+2)=0$

$x=-2$ غ ق ق $x=6$

۲-

x_1	x_2	mx^2-5x+m
		$-\phi+\phi-$

$\hookrightarrow m<0 \rightarrow P>0 \rightarrow P=1$

$S<0$

$x_1=\frac{1}{x_2} \rightarrow \frac{1}{x^2}+x^2=\frac{5}{m}$

$\Delta>0 \rightarrow 25-4m^2>0 \rightarrow 25>4m^2 \rightarrow \frac{25}{4}>m^2 \rightarrow \frac{5}{2}>m$

Arman

$$S = \frac{۳ - \sqrt{۵} + ۳ + \sqrt{۵}}{۲} = ۳$$ ـ۳

$$P = \frac{۳ - \sqrt{۵}}{۳} \times \frac{۳ + \sqrt{۵}}{۲} = \frac{۹ - ۵}{۹} = \frac{۴}{۹۰}$$

$$\rightarrow x^۲ - Sx + P = ۰ \longrightarrow x^۲ - ۳ + \frac{۴}{۹} \xrightarrow{\times ۹}$$

$$۹x^۲ - ۲۷x + ۴ = ۰$$

$$\frac{\alpha}{\beta} \gg ۲x^۲ - ۸x + m + ۲ = ۰$$ ـ۴

$$S = ۴$$

$$P = \frac{m+۲}{۲}$$

$$\alpha^۲ + \beta^۲ + ۲\alpha^۲ = ۱۲$$

$$(S^۲ - ۲P) + ۸\alpha - m - ۲ = ۱۲$$

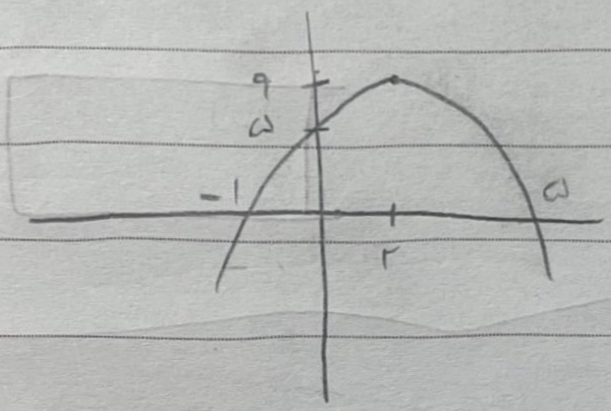
$$۳\alpha^۲ = ۸\alpha - m - ۲ \qquad ۱۶ - m - ۲$$

$$۸\alpha - ۲m + ۱۶ = ۱۶ \rightarrow ۴\alpha = m$$

$f(x) = ax^2 + bx + c \rightarrow \underline{c = 0}$ — ۵

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

$x = 2 \rightarrow 4a + 2b + 0 = 4 \rightarrow 2a + b = 2 \rightarrow \underline{a = -1}$



$f(x) = -x^2 + 4x + 0$

$(-x + 0)(x + 1) = 0$

$x = 0 \text{ or } -1$

$x \Rightarrow (-1, 0)$

$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = \frac{S}{P}$ — ۶

$S = \frac{7}{2}$ $\quad \frac{7}{2} + \frac{9\beta}{2} = \frac{7 + 9\beta}{2} = \frac{\alpha + \beta}{\alpha\beta}$

$P = \frac{9\beta}{2}$

$7\beta + 9\beta^2 - \beta = 2$

$9\beta^2 + 6\beta = 2$

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$$x^2 + mx - 2m = 0 \quad \begin{cases} \alpha \to S = -m \\ \beta \to P = -2m \end{cases}$$

$$\alpha^2 - m\beta = 8 \to -m(S) + 2m = 8$$

$-m\alpha + 2m$

$$+m^2 + 2m - 8 = 0 \to (m+4)(m-2) = 0$$

$\to m = 2$ یا -4

$S = -m \Rightarrow$ **-2 یا 4**

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

$$-\frac{\Delta}{4a} = 8 \to 32a = 4ac - b^2$$

$$32m + 16 = 4(m)\left(\frac{m}{2} + 7\right)$$

$$0 = 2m^2 + 28m - 32m - 16 \to 2m^2 - 4m - 16 = 0$$

$$m^2 - 2m - 8 = 0$$

$$(m-4)(m+2) = 0$$

$m = 4$ یا -2 → ماکزیمم → $m < 0$ → **$m = -2$**

($m=4$: غ‌ق‌ق ، $m=-2$: ق‌ق)

$$-2x^2 + 4x + 6 = 0 \to x^2 - 2x - 3 = 0 \to (x-3)(x+1) = 0 \to \begin{cases} x = 3 \\ x = -1 \end{cases}$$

Arman

$k = 3$

۹-

$ax^2 + bx + c = f(x) \langle^{\alpha}_{\beta}$

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

$c = 4$ ، $\frac{-b}{2a} = 2 \to 4a = -b$ ($\times 2$)

$\frac{-\Delta}{4a} = 9 \to 36a = \underbrace{4ac}_{16a} - b^2 \to b^2 = -8a$

$+\begin{cases} 8a = -2b \\ -8a = b^2 \end{cases} \Rightarrow b^2 - 2b = 0 \to b = 0$ یا $2 \to$ ق ق (غ ق ق)

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

$-\frac{1}{2}x^2 + 2x + 4 \xrightarrow{\times -2} x^2 - 4x - 8 = 0$ $\sim \sqrt{48} = 4\sqrt{3}$

$\alpha, \beta = \frac{4 \pm \sqrt{16+32}}{2}$

$\frac{1}{\alpha} = \frac{1}{2 + 2\sqrt{3}}$

$\frac{1}{\beta} = \frac{1}{2 - 2\sqrt{3}}$ (+) $\sim \frac{2 - 2\sqrt{3} + 2 + 2\sqrt{3}}{4 - 12} = \frac{4}{-8}$

$\to \frac{1}{\alpha} + \frac{1}{\beta} = \boxed{-\frac{1}{2}}$

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۱۰-

$x=2$

$\hookrightarrow$ ~~$4-8a-8+12a^2+4a+3=0$~~

$3a^2-2a-1=0 \rightarrow a^2-2a-3=0 \quad (a-3)(a+1)=0$

$a=1 \;\text{یا}\; -\frac{1}{3}$ $\rightarrow a=1 \rightarrow x^2-8x+12=0$

$a=-\frac{1}{3} \rightarrow x^2-\frac{8}{3}x+\frac{4}{3}=0 \xrightarrow{\times 3}$

$x^2-8x+12$

$(x-6)(x-2)=0 \rightarrow x=2, \; x=6$

$3x^2-8x+4=0 \rightarrow x^2-8x+12=0 \rightarrow (x-6)(x-2)$

$x=2 \qquad x=\frac{2}{3}$

$x_1=2$

$x_2=\frac{2}{3} \;\text{یا}\; 6$

Arman