

تکلیف شماره ۱۳

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$$y = (a-1)x^r + x + 3, \quad x=2$$

$$x = \frac{-b}{ra} = \frac{-1}{r(a-1)} \rightarrow \frac{-1}{r(a-1)} = 2 \quad -1 = \epsilon a - \epsilon \rightarrow a = \frac{1}{\epsilon}$$

$$y = \frac{1}{\epsilon} x^r + x + 3 \xrightarrow{x=2} x^r - \epsilon x - 12 = 0 \rightarrow x = 9, -2 \rightarrow \boxed{x=9}$$

$$f(x) = m x^r - \alpha x + m$$

$$\begin{array}{cc} x_1 & x_2 \\ - & + \\ \hline & \end{array}$$

$$\star \rightarrow \begin{cases} \Delta > 0 \rightarrow r\alpha - \epsilon m^r > 0 \rightarrow m^r < \frac{r\alpha}{\epsilon} \\ m < 0 \end{cases} \rightarrow |m| < \frac{\alpha}{r}, \frac{\alpha}{r} m < \frac{\alpha}{r}$$

$$\textcircled{1}, \textcircled{2} \xrightarrow{\text{استدلال}} \frac{\alpha}{r} m < -$$

$$\text{نقطه‌های بحرانی: } \frac{\mu - \sqrt{\omega}}{\mu}, \frac{\mu + \sqrt{\omega}}{\mu}$$

$$S = \frac{\mu - \sqrt{\omega}}{\mu} + \frac{\mu + \sqrt{\omega}}{\mu} = 2$$

$$P = \frac{\mu + \sqrt{\omega}}{\mu} \times \frac{\mu - \sqrt{\omega}}{\mu} = \frac{\epsilon}{a}$$

$$x^r - 5x + P \rightarrow x^r - 2x + \frac{\epsilon}{a} = 0 \xrightarrow{x=9} \boxed{9x^r - 18x + \epsilon = 0}$$

$$r x^r - 18x + m + 2 = 0, \quad \alpha < \beta, \quad 3\alpha^r + \beta^r \leq 12$$

$$S = \epsilon, \quad P = \frac{m+r}{r}, \quad \alpha + \beta = \epsilon \rightarrow \beta = \epsilon - \alpha$$

$$3\alpha^r + \beta^r \leq 12 \Rightarrow 3\alpha^r + (\epsilon - \alpha)^r \leq 12 \Rightarrow 3\alpha^r + \alpha^r - 18\alpha + 14 - 12 = 0 \Rightarrow \epsilon \alpha^r - 18\alpha + \epsilon = 0$$

$$\alpha^r - 2\alpha + 1 = 0 \rightarrow (\alpha - 1)^r = 0 \rightarrow \boxed{\alpha = 1} \quad \beta = \epsilon - \alpha \Rightarrow \epsilon - 1 \geq \mu \rightarrow \beta \leq 2$$

$$P \leq \alpha \beta \leq 3 \rightarrow \frac{m+r}{r} \leq 3 \rightarrow \boxed{m \leq 8}$$

$$S \mid \frac{r}{q} \quad (0, \omega) \quad y = a(x-h)^r + k \rightarrow y = a(x-r)^r + 9 \quad (\text{و.و.})$$

$$0 = a(0-r)^r + 9 \rightarrow a = -1 \quad y = -(x-r)^r + 9 \rightarrow y) \rightarrow -(x-r)^r + 9 = 0$$

$$(x-r)^r < 9 \rightarrow -3 < x-r < 3 \rightarrow \boxed{-1 \leq x \leq 5}$$

$$\alpha x^r - 6x + 9 \beta \leq 0, \quad \beta) = \frac{1}{\alpha} + \frac{1}{\beta} = ?$$

$$S = \alpha + \beta \leq \frac{V}{\alpha}, \quad \alpha \beta \leq \beta \leq \frac{9\beta}{\alpha} \rightarrow \alpha^r \beta \leq 9 \xrightarrow{\beta) = 0} \alpha^r \leq 9 \rightarrow \alpha = \pm 3$$

$$\alpha \leq 3 \rightarrow \mu + \beta \leq \frac{V}{\mu} \rightarrow \beta \leq \frac{V}{\mu} - \mu \quad \alpha = -3 \rightarrow -4 + \beta \leq \frac{V}{\mu} \rightarrow \boxed{\beta \leq \frac{r}{\mu}}$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = -\frac{1}{\mu} + \frac{\mu}{r} = \frac{V}{9} \quad \alpha = -3, \quad \beta \leq \frac{r}{\mu}$$

$$x^r + m x - 2m = 0, \quad \alpha^r - m \beta \leq 1$$

$$\alpha^r + m \alpha - 2m = 0$$

$$\alpha^r = -m \alpha + 2m$$

$$S = \alpha + \beta \leq -2 \leftarrow m \leq 2 \rightarrow \Delta > 0 \rightarrow \checkmark$$

$$S = \alpha + \beta \leq -m$$

$$P = \alpha \beta \leq -2m$$

$$m \leq -\epsilon, \quad m \leq 2$$

$$\alpha^r - m \beta \leq 1$$

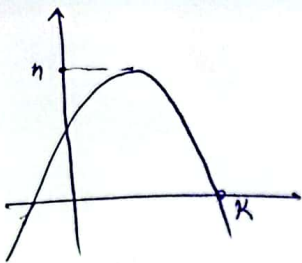
$$(-m \alpha + 2m) - m \beta \leq 1$$

$$-m(\alpha + \beta) + 2m = 1 \leq 0$$

$$m \leq -\epsilon, \quad m \leq 2$$

$$m \leq -\epsilon \rightarrow \Delta < 0 \quad \alpha$$





$$f(x) = mx^2 + \epsilon x + \frac{m}{\epsilon} + V$$

$$x = \frac{-\epsilon}{2m} = \frac{-2}{m}$$

$$f(x) = m \left(\frac{-2}{m} \right)^2 + \epsilon \left(\frac{-2}{m} \right) + \frac{m}{\epsilon} + V = 1$$

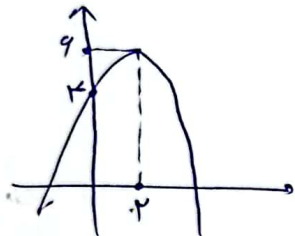
$$\frac{-\epsilon}{m} + \frac{m}{\epsilon} + V = 1 \implies -1 + m^2 = 2m$$

$$m^2 - 2m - 1 = 0 \implies m = 2 \pm \sqrt{5}$$

$$m = 2 \implies -2x^2 + \epsilon x + 4$$

$$x^2 + \epsilon x - 12 = 0 \implies (x+4)(x-3) = 0 \implies x = 3, x = -4$$

$$\checkmark \text{ جواب صحیح است } K = 3$$



$$\frac{1}{a} + \frac{1}{\beta} = \frac{a+\beta}{a\beta} = \frac{-b}{\frac{c}{a}} = \frac{-b}{c}$$

$$y = a(x-h)^2 + k \implies y = a(x-2)^2 + 4 \implies y = \epsilon = a(-2)^2 + 4$$

$$\implies a = \frac{1}{\epsilon} \implies y = \frac{1}{\epsilon} (x-2)^2 + 4 \implies \frac{1}{\epsilon} x^2 + \frac{4}{\epsilon} x + \frac{1}{\epsilon} = 0$$

$$\implies \frac{1}{a} + \frac{1}{\beta} = \frac{-b}{c} = \frac{-2}{\epsilon} = \frac{1}{\epsilon}$$

$$x^2 - (\epsilon a + \epsilon)x + (4a + 4) = 0$$

$$a = 2 \implies 5 = a + \beta = \epsilon a + \epsilon \implies \beta = \epsilon a + 2$$

$$12 = a\beta = 2a + 4a + 2 \implies 2(\epsilon a + 2) = 12 \implies \epsilon a + 2 = 6 \implies \epsilon a = 4$$

$$2a^2 - 4a - 1 = 0 \implies a = 2 \pm \sqrt{5} \implies a = \frac{1}{\epsilon} \implies a = 1$$

$$a = 1 \implies x^2 - 1x + 12 = 0 \implies x = 3, x = 4$$

$$a = \frac{1}{\epsilon} \implies x^2 - \frac{1}{\epsilon}x + \frac{\epsilon}{\mu} = 0 \implies \mu x^2 - 1x + \epsilon = 0 \implies x = \left(\frac{1}{\mu} \right), 1$$

$$\boxed{x = 4 \text{ و } \frac{1}{\mu}}$$