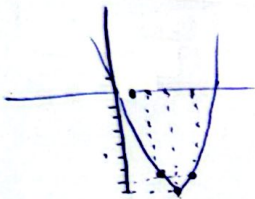


الف) $y = 2x^2 - 4x + 1 \rightarrow \min \left\{ \begin{array}{l} -\frac{b}{2a} = \frac{4}{4} = 1 \\ \frac{\Delta}{4a} = \frac{-(14 - 4(2)(1))}{-4} = -1 \end{array} \right.$

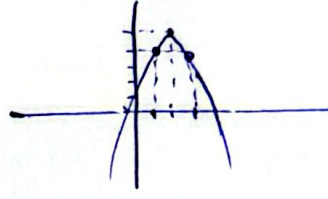
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ب) $y = -2x^2 + 4x - 5 \rightarrow \max \left\{ \begin{array}{l} -\frac{b}{2a} = \frac{-4}{-4} = 1 \\ \frac{\Delta}{4a} = \frac{-(9 - 4(-2)(-5))}{-4} = \frac{-31}{4} \end{array} \right.$

الف) $y = x^2 - 4x + 1 \rightarrow \min \left\{ \begin{array}{l} 2 \\ -4 \end{array} \right.$
 $x \geq 0 \rightarrow y \geq 1 \quad / \quad x = 4 + y = -1 \quad / \quad x = 2 \rightarrow y = -1$



ب) $-x^2 + 4x + 1 \rightarrow \max \left\{ \begin{array}{l} 2 \\ 4 \end{array} \right.$
 $x \geq 0 \rightarrow y \geq 1 \quad / \quad x = 1 \rightarrow y = 4 \quad / \quad x = 3 \rightarrow y = 2$



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$n = \left(\frac{1}{2} \right) \rightarrow -\alpha \beta n = -(-2)n = \frac{-1}{1} \rightarrow n = -\frac{1}{2}$

$\rightarrow f\left(-\frac{1}{2}\right) + k\left(\frac{1}{14}\right) + \frac{9}{2} - 1 \geq 0 \rightarrow \frac{k}{14} \geq \frac{-3}{14} \rightarrow \boxed{k \geq -3}$

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$\sqrt{\alpha} - \sqrt{\beta} \geq 1 \xrightarrow{\text{تربیع}} \alpha + \beta - 2\sqrt{\alpha\beta} \geq 1 \rightarrow 5 - 2\sqrt{P} \geq 1 \rightarrow 5 \geq \frac{-b}{a} = \frac{4m}{P} = \frac{c}{a} = m$

$5 - 2\sqrt{P} \geq 4m - 2\sqrt{m} \geq 1 \rightarrow 4m - 2\sqrt{m} - 1 \geq 0 \rightarrow (4\sqrt{m} + 1)(\sqrt{m} - 1) \geq 0$

$\rightarrow \sqrt{m} \geq 1 \rightarrow m \geq 1 \rightarrow 2m^2 - a - 1 \geq 0 \rightarrow \frac{c}{a} = \frac{-1}{2}$

$\downarrow \sqrt{m} = -\frac{1}{2} \times$

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$y = 2x^2 - (m+2)x + m \xrightarrow{\text{مربوع}} m \geq 1, m$

$\Delta = \frac{1}{4} \left(m \left(\frac{m}{2} - 1 \right) \right) \geq \frac{3}{2} \rightarrow |m(m-2)| \geq 3 \rightarrow m=1 \rightarrow \frac{m}{2} = \frac{-1}{2}$
 $\hookrightarrow m=3 \rightarrow \frac{m}{2} = \frac{3}{2}$

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$$\frac{-\Delta}{\epsilon a} = \frac{\epsilon a c - b^2}{\epsilon a} = \frac{\epsilon a^2 - 9}{2a} = \frac{V}{\lambda} \rightarrow 2ra^2 - 12r - 2ra = 0$$

$$\rightarrow (a-2)(2ra+3) \rightarrow a=2, \frac{-9}{\lambda}$$

چون \min است b است $a=2$ درست است $\frac{1}{\lambda}$ نیست

6

$$① |\alpha - \beta| = \frac{\sqrt{\Delta}}{|\alpha|} = \frac{\sqrt{a^2 + 1 + 4a - 2a}}{1} = \sqrt{(a-1)^2} = 2 \rightarrow |a-1| = 2 \rightarrow a=3$$

$$② |\alpha' - \beta'| = \frac{\sqrt{\Delta}}{|\alpha|} = \frac{\sqrt{9a^2 + 1 + 4a - 2a}}{1} \geq a=2 \rightarrow b=2 \rightarrow |2-3|=1$$

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$$y = -an^2 + an + r \rightarrow \text{ent} \left| \begin{array}{l} \frac{1}{r} \\ \frac{a^2 + na}{2} \end{array} \right. \quad y = rbm^2 - b m - 1 \rightarrow \text{ent} \left| \begin{array}{l} \frac{1}{2} \\ \frac{b}{-1/b} \end{array} \right.$$

$$\left. \begin{array}{l} rb(\frac{1}{2}) - b(\frac{1}{r}) - 1 = \frac{a}{2} \rightarrow a = -12 \\ \frac{-a}{14} + \frac{a}{2} + r = \frac{b}{\lambda} - 1 \rightarrow b = -9 \end{array} \right\} b - a = -9 - (-12) = 3$$

8

$$y = r\alpha \alpha n^2 + \epsilon n + \beta, \beta > \alpha \rightarrow \alpha + \beta = \frac{-\epsilon}{r\alpha} \quad / \quad \alpha \cdot \beta = \frac{\beta}{r\alpha} \rightarrow \alpha^2 = \frac{1}{r\alpha} \rightarrow \alpha = \frac{1}{r}$$

$$\rightarrow r\alpha \alpha \frac{1}{r\alpha} + \epsilon \alpha + \beta = 0 \rightarrow \alpha + \beta = 0 \rightarrow \beta = -\alpha \quad \beta > \alpha \rightarrow \alpha = -\frac{1}{\alpha}, \beta = 1$$

$$y = r\alpha \left(-\frac{1}{\alpha}\right) n^2 + \epsilon n + 1 = -\alpha n^2 + \epsilon n + 1 \rightarrow \text{ent} \left| \begin{array}{l} -\frac{b}{ra} = 0.12 \\ \frac{-\Delta}{2a} = \frac{9}{a} \end{array} \right.$$

دستور

9

$$S = ab = a^2 + b^2 - 12$$

$$P = ab = a + b - 1 \rightarrow a^2 + b^2 = S^2 - 4P \rightarrow S = S^2 - 1(S-1) - 12$$

$$\rightarrow S = S^2 - 4S + 1 \rightarrow S = S^2 - 4S - 1 \rightarrow S^2 - 5S - 1 = 0 \rightarrow (S-2)(S+3) = 0$$

$$\hookrightarrow S = 2 \checkmark$$

$\hookrightarrow S = -3$ \times زیرا a, b مثبت است

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