

$$\frac{\alpha^2 + \beta^2}{\alpha\beta^2} = \frac{\alpha^2}{\alpha\beta^2} + \frac{\beta^2}{\alpha\beta^2} = \frac{\alpha}{\beta^2} + \frac{\beta^2}{\alpha} \left\{ \begin{array}{l} \frac{\alpha}{\alpha(\frac{\alpha}{\alpha})^2} + \frac{\beta^2}{\alpha} = \frac{\alpha}{\alpha} + \frac{\beta^2}{\alpha} \rightarrow \alpha^2 + \beta^2 = 5 \cdot 19 = 95 \\ \sim \frac{\alpha^2 - 4 \times 19 \times \alpha}{\alpha} = \frac{95}{\alpha} = 19 \end{array} \right.$$

$P = \alpha\beta = 2 \rightarrow \beta = \frac{2}{\alpha}$
 $5 = \alpha + \beta = \alpha$

$y = ax^2 + bx + c \quad y = 4, \quad 11 \times 2a - 11b + c = 9a + 4b + c \rightarrow 41 \times 2a - 11b + c = 9a + 4b + c \rightarrow 71 \times 2a - 15b = 0$
 $\rightarrow b = 11 \times 2a$ مجموع ریشه ها $= \frac{-b}{a} = \frac{+11 \times 2a}{a} = 11 \times 2$

$D = \frac{\Delta}{a} = \frac{c}{4} k^2 \rightarrow \frac{\Delta}{a^2} = \frac{14}{9} k^2 \rightarrow \frac{4k^2 - 10}{1} = \frac{14}{9} k^2 \rightarrow 36k^2 - 180 = 14k^2$
 $\rightarrow 20k^2 - 180 = 0 \rightarrow 20(k^2 - 9) = 0 \rightarrow k^2 - 9 = 0 \rightarrow k^2 = 9$
 $\left[\frac{k^2}{4} \right] = \left[\frac{9}{4} \right] = [2.25] = 2$

$x_5 = \frac{-a+r}{4} = -1 \rightarrow \frac{-b}{4a} = -1 \rightarrow \left[\frac{b}{a} = 4 \right] \textcircled{1}$
 $\alpha^2 + \beta^2 = a \rightarrow \alpha^2 + \beta^2 + 2\alpha\beta = a + 2\alpha\beta \rightarrow (\alpha + \beta)^2 = a + 2\alpha\beta \rightarrow \left(\frac{-b}{a} \right)^2 = a + 2\alpha\beta$
 $4\alpha = -1 \rightarrow \alpha = -\frac{1}{4} = \frac{c}{a} \textcircled{2}$
 $ax^2 + bx + c = y \rightarrow a(x^2 + \frac{b}{a}x + \frac{c}{a}) = y \xrightarrow{\textcircled{1}, \textcircled{2}} a(1 - 4 - \frac{1}{4}) = 1 \rightarrow a = -\frac{4}{3} \textcircled{3}$
 $\frac{c}{a} = -\frac{1}{4} \textcircled{4} \rightarrow c = \frac{1}{4} \textcircled{5}$

$\Delta_{\pm} = \frac{-a \pm \sqrt{a^2 - 4cm}}{2} \Rightarrow \left(\frac{-a - \sqrt{a^2 - 4cm}}{-2m} < \frac{a}{4} \right) \times 2 \rightarrow a + \sqrt{a^2 - 4cm} < a$
 $\rightarrow \sqrt{a^2 - 4cm} < 0 \rightarrow a + 4m < 14 \rightarrow 4m < -9 \rightarrow m < -\frac{9}{4} \rightarrow m < -2.25$
 $\Delta > 0 \rightarrow a + 4m > 0 \rightarrow m > -\frac{a}{4} \rightarrow m > -1.25$
 $-4.25 < m < -2.25 \rightarrow -4, -3, -2, -1 \rightarrow \text{عدد 3}$

$$y = mx^2 - 12x + 2m - 1 \Rightarrow \min_{x>0} \rightarrow m < 0, \text{ عرضی } x = -\frac{b}{2a} = \frac{y}{m}, \text{ عرضی } y = 2 \rightarrow y_{\min}$$

$$2 = m\left(\frac{y}{m}\right)^2 - 12\left(\frac{y}{m}\right) + 2m - 1 \rightarrow 2 = \frac{y^2}{m} - \frac{12y}{m} + 2m - 1 \Rightarrow 2m^2 - 3m - y^2 = 0$$

$$\Delta = 9 + 4(y^2) = 4y^2 \rightarrow m_1, m_2 = \frac{3 \pm 2y}{2} = 3, \frac{-y}{2} \xrightarrow{m>0} m = 3$$

$$\text{عرضی } x = \text{عرضی } y = \frac{y}{m} \xrightarrow{m=3} \frac{y}{3} = 2 \rightarrow \text{مختصات: } \boxed{x=2}$$

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$$x^2 + x(a+1) + 2a - 1 = 0, \alpha, \beta \rightarrow \alpha^2 + \alpha\beta + \alpha^2 = \frac{c}{a} \rightarrow \alpha^2 = 2a - 1$$

$$-\alpha^2 - 2a + 1 = 0 \rightarrow (a-1)^2 = 0 \rightarrow a=1 \text{ (۱)}, \Delta > 0 \text{ (۲)}$$

$$\text{(۱), (۱)} \rightarrow x^2 + x(1+1) + 2(1) - 1 = 0 \rightarrow x^2 + 2x - 1 = 0 \rightarrow \Delta = 14 - 4(1)(-1) > 0 \checkmark \text{ (۳)}$$

$$\text{(۱), (۲), (۳)} \rightarrow \boxed{a=1}$$

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$$x^2 = t \rightarrow t^2 - vt - a = 0 \rightarrow t_{1,2} = \frac{v \pm \sqrt{v^2 + 4a}}{2} \rightarrow x^2 = \frac{v \pm \sqrt{v^2 + 4a}}{2} \Rightarrow x = \pm \sqrt{\frac{v \pm \sqrt{v^2 + 4a}}{2}}$$

$$S = 0 \rightarrow x_S, x_P = 0 \rightarrow x_P^2 = x \left[\left(-\sqrt{\frac{v + \sqrt{v^2 + 4a}}{2}} \right) \left(\sqrt{\frac{v + \sqrt{v^2 + 4a}}{2}} \right) \right]^2 = x \left(\frac{-v + \sqrt{v^2 + 4a}}{2} \right)^2$$

$$\Rightarrow x \left(\frac{4a + 14\sqrt{4a + 4a}}{4} \right) = \frac{11a + 14\sqrt{4a}}{2} \Rightarrow x_P^2 = \frac{a^2 + v\sqrt{4a}}{2}$$

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$$y = kx^2 - 6x - 4, \text{ عرضی } x = -\frac{b}{2a} = \frac{y}{k}, \text{ عرضی } y = k\left(\frac{y}{k}\right)^2 - 6\left(\frac{y}{k}\right) - 4 \Rightarrow \text{عرضی } y = \frac{y}{k} - 4$$

$$y = -6x - 4 \rightarrow -\frac{y}{k} - 4 = -6\left(\frac{y}{k}\right) - 4 \Rightarrow \frac{y}{k} = 2 \rightarrow k = 2$$

$$2x^2 - 6x - 4 = y \rightarrow \frac{-\Delta}{2a} = \frac{-(14 - 4(-4)(2))}{2(2)} = \frac{-44}{4} \Rightarrow y = -11$$

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$$-mx^2 + m\lambda + 1 = -m - \lambda \rightarrow -mx^2 + m\lambda + 1 + m + \lambda \rightarrow \Delta = (m+1)(\lambda m + 1) < 0$$

$$\rightarrow \frac{-1}{+} \mid \frac{-1}{-} \mid \frac{+}{+} \rightarrow m = (-1, -\frac{1}{\lambda}) \rightarrow \text{شماره صحیح عدد صحیح نیست}$$

(چون باید حاصل بر فرد و برابر باشد)
فاصله باشد و این یعنی این $\Delta < 0$

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