

$$y = am^2 + bm + c$$

$$\text{Ext} \left| \frac{1}{9} = -\frac{b}{2a} \Rightarrow b = 2a \right\} \Rightarrow y = am^2 + 2am + c \Rightarrow \boxed{y = -\frac{1}{4}x^2 - 2x + 1, a}$$

$$\left. \begin{aligned} m = -1 \Rightarrow y = a - 2a + c = 9 \\ m = 3 \Rightarrow y = 9a + 6a + c = 1 \end{aligned} \right\} \Rightarrow 14a = -1 \Rightarrow a = -\frac{1}{14}, c = 1, a$$

$$\hookrightarrow b = 2a = -\frac{1}{7}$$

$$m_1, m_2 > 0 \Rightarrow m_1 + m_2 = S > 0 \Rightarrow -\frac{b}{a} > 0 \Rightarrow -\frac{m}{p} > 0 \Rightarrow (m < 0) (*)$$

$$m_1 \times m_2 = P > 0 \Rightarrow \frac{c}{a} > 0 \Rightarrow \frac{m+q}{p} > 0 \Rightarrow (m > -q) (**)$$

$$\Delta > 0 \Rightarrow b^2 - 4ac > 0 \Rightarrow m^2 - 4(m+q)(p) > 0 \Rightarrow$$

$$m^2 - 4m - 4p(m+q) > 0 \Rightarrow (m-12)(m+4) > 0 \Rightarrow \frac{-12}{+ \phi} - \frac{12}{- \phi} \Rightarrow D(m \in (-\infty, -4) \cup (12, +\infty)) (***)$$

$$(*) \cap (**) \cap (***) = (-\infty, -4) \checkmark$$

$$m_1 + m_2 = \frac{1}{m_1 m_2} \Rightarrow S = \frac{1}{P} \Rightarrow -\frac{b}{a} = \frac{1}{\frac{c}{a}} = \frac{a}{c} \Rightarrow -\frac{b}{a} = \frac{a}{c} \Rightarrow$$

$$\frac{-(2m-1)}{p} = \frac{p}{p-m} \Rightarrow 9 = (2m-1)(m-p) \Rightarrow 2m^2 - 4m - 1 = 0 \Rightarrow m^2 - 2m - \frac{1}{2} = 0$$

$$\Delta > 0 \Rightarrow (2m-1)^2 - 4(p-m)(p) > 0 \Rightarrow 4m^2 - 4m + 1 - 4p^2 + 4pm > 0 \Rightarrow 4m^2 + 4pm - 4m + 1 - 4p^2 > 0$$

$$m^2 - 2m - \frac{1}{2} = 0 \Rightarrow \left. \begin{aligned} S = 1 = m_1 + m_2 \\ P = -\frac{1}{2} = m_1 \times m_2 \end{aligned} \right\} \Rightarrow \boxed{y = x^2 - 5x + \frac{1}{2}}$$

برای دو معادله
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کنیم

$$P(m_1 + \frac{1}{m_1})(m_2 + \frac{1}{m_2}) = \frac{m_1 m_2}{p} + \frac{m_1 + m_2}{p} + \frac{1}{m_1 m_2} = -\frac{1}{2} + 1 - \frac{1}{\frac{1}{2}} = -\frac{1}{2} - 2 = -\frac{5}{2} = \frac{m_1}{\frac{1}{2}} \Rightarrow$$

$$S = m_1 + m_2 + \frac{1}{m_1} + \frac{1}{m_2} = S - \frac{m_1}{p} + \frac{S}{p} = 1 + 1 - \frac{1}{\frac{1}{2}} = 1 + 1 - 2 = 0 \Rightarrow \boxed{y = m^2 - \frac{1}{2}m - \frac{1}{2}}$$

$$x\sqrt{m} + x + \sqrt{m} - \frac{1}{\sqrt{m}} = 2\sqrt{m} \Rightarrow$$

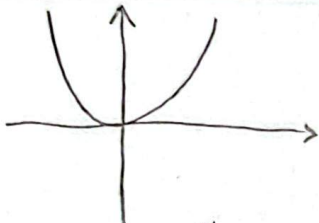
$$x\sqrt{m} - \frac{1}{\sqrt{m}} - 2\sqrt{m} = 0 \xrightarrow{\text{تکثیر با } \sqrt{m}} x^2 - 1 - 2m = 0 \Rightarrow S = -\frac{b}{a} = 2$$

$$u_1 = \sqrt{m} \sqrt{p}$$

$$u_1 \cdot u_2 = p = \frac{c}{a} \Rightarrow p = \frac{c}{a} \Rightarrow \sqrt{m} \sqrt{p} \cdot \sqrt{p} = \frac{c}{a} \Rightarrow \sqrt{m} \cdot p = \frac{c}{a} \Rightarrow m \cdot p = \frac{c^2}{a^2}$$

$$m_1 = \sqrt{p}, m_2 = \frac{p}{\sqrt{p}} \Rightarrow S = -\frac{b}{a} = \frac{1}{\sqrt{p}} = \frac{a}{p} \Rightarrow \boxed{a=1}$$

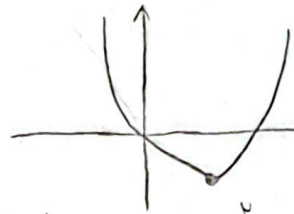
$$u_1 = -\sqrt{p}, m_2 = -\frac{p}{\sqrt{p}} \Rightarrow S = -\frac{b}{a} = -\frac{1}{\sqrt{p}} = \frac{a}{p} \Rightarrow \boxed{a=-1} \Rightarrow 1 - (-1) = 2$$



$$a > 0$$

$$\Delta = 0 \Rightarrow b^2 - 4ac = 0 \Rightarrow$$

$$b^2 = 0 \Rightarrow \sqrt{m} + \sqrt{p} = 0 \Rightarrow \sqrt{p} = -\sqrt{m} \Rightarrow p = m \Rightarrow S > 0 \Rightarrow -\frac{p-2a}{a} > 0 \Rightarrow \frac{-\frac{p}{\sqrt{p}} + \frac{0}{\sqrt{p}}}{-1 + 1} = \frac{-\frac{p}{\sqrt{p}}}{0}$$



۲ حالت داریم:

$$a > 0$$

$$C = 0$$

$$a \neq -\frac{p}{\sqrt{p}}$$

$$\Rightarrow p \neq \frac{c^2}{a^2}$$

$$\Rightarrow p \neq \frac{1}{4}$$

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محور تقارن سهمی قائم است پس u اکسیر هم با هم برابر است:

$$-\frac{a}{p} = -\left(\frac{-2}{-4}\right) = -1 \Rightarrow \frac{a}{p} = 1 \Rightarrow \boxed{a=p} \Rightarrow m^2 + p \cdot m - p = 0$$

$$m^2 + p \cdot m - p = 0 \Rightarrow m^2 + p \cdot m - p = 0 \Rightarrow (m+1)(m-1) = 0$$

$$-m^2 - p \cdot m + b = 1 \xrightarrow{m=1} -1 - p + b = 1 \Rightarrow b = p + 2$$

$$m^2 - a \cdot m + b = 0 \xrightarrow{\text{ریشه ها}} \alpha, \beta \Rightarrow \alpha + \beta = -\frac{b}{a} = -\frac{p+2}{p} = -\left(1 + \frac{2}{p}\right)$$

$$p \alpha^2 + a \alpha - 4 \xrightarrow{\text{ریشه ها}} \alpha + \frac{1}{\alpha} + \beta + \frac{1}{\beta} = -\frac{b}{a} = -\frac{p+2}{p} \Rightarrow \alpha + \beta + \frac{1}{\alpha} + \frac{1}{\beta} = -\frac{p+2}{p}$$

$$\left\{ \begin{array}{l} \frac{a}{p} = 1 - \frac{1}{p} \Rightarrow \boxed{a=1} \\ p = \frac{c}{a} = \frac{4}{1} = \boxed{4} \end{array} \right\} \Rightarrow (\alpha + \frac{1}{\alpha}) + (\beta + \frac{1}{\beta}) + \frac{1}{\alpha\beta} = -\frac{p+2}{p} \Rightarrow \alpha\beta = -\frac{p}{p+2} = -\frac{4}{6} = -\frac{2}{3}$$

$$\beta^2 + 4\beta + m = \beta^2 + \beta - m \Rightarrow$$

$$4\beta = -m \Rightarrow \boxed{\beta = -m} \xrightarrow{\text{در محله های بالا جایگزین کنیم}} m^2 - 4m + m = 0 \Rightarrow m^2 - 3m = 0 \Rightarrow m(m-3) = 0 \Rightarrow m = 0 \text{ یا } m = 3$$

$$\boxed{m=0} \Rightarrow m^2 + 4m + d = 0 = (m+d)(m+1) \Rightarrow m = -1$$

$$m^2 + p \cdot m - 1d = 0 = (m+d)(m-3) \Rightarrow m = 3$$