

$y = a(x-h)^2 + k = a(x+1)^2 + 9 \xrightarrow{\text{باز کردن قوس ها}} 1 = a(x+1)^2 + 9 \quad -1 = 9a \quad \boxed{a = -\frac{1}{9}}$

$\frac{-b}{2a} = -1 = \frac{-b}{-1} \Rightarrow \boxed{b = -1}$

$\frac{-c}{a} = 9 = \frac{-(1+c)}{-1} \Rightarrow \boxed{c = \frac{10}{9}}$

$y = ax^2 + bx + c = \boxed{-\frac{1}{9}x^2 - x + \frac{10}{9}}$

$\Delta > 0 \rightarrow b^2 - 4ac > 0 \rightarrow m^2 - 4(m+2) > 0 \rightarrow m^2 - 4m - 8 > 0 \rightarrow (m-2)(m+4) > 0$
 $\rightarrow m < -4$ یا $m > 2$

$p > 0 \rightarrow \frac{c}{a} > 0 \rightarrow \frac{m+2}{1} > 0 \rightarrow m+2 > 0 \Rightarrow \boxed{m > -2}$

مجموعه دو عدد از دو بازه مشخصه و قرار می دهیم

$r > 0 \rightarrow \frac{-b}{a} > 0 \rightarrow \frac{m}{1} > 0 \rightarrow m > 0 \Rightarrow \boxed{m > 0}$

$m < -4$ یا $m > 2$ و $m > -2$ و $m > 0$
 $\Rightarrow m \in (-4, 2) \cap (2, \infty) \cap (0, \infty) = \boxed{m \in (0, 2)}$

$\Delta > 0 \rightarrow b^2 - 4ac > 0 \rightarrow (2m-1)^2 - 4(1)(m-2) > 0$
 $4m^2 - 4m + 1 + 4m - 8 > 0$
 $4m^2 - 7 > 0$

$\frac{-b}{a} = \frac{a}{c} = \frac{2m-1}{1} = \frac{1}{m-2} \Rightarrow (2m-1)(m-2) = -1$
 $-2m^2 + 4m - 2 = -1 \rightarrow -2m^2 + 4m - 1 = 0$

$m \in \{0, 1\}$

$x_1 \leq x_2 = 0$

$\frac{p_{\text{میان}}}{q_{\text{میان}}} = \frac{x_1 + x_2}{x_1 x_2} = \frac{1 + \frac{1}{x_1}}{x_1 + \frac{1}{x_1}} = \frac{x_1 + 1}{x_1^2 + 1} = \frac{-b}{a} = \frac{-1}{1} = -1$

$p_{\text{میان}} = (x_1 + \frac{1}{x_1})(x_2 + \frac{1}{x_2}) = \frac{x_1 x_2 + x_1^2 + x_2^2 + 1}{x_1 x_2} = \frac{1 + 1 + 1 + 1}{1} = 4$
 $q_{\text{میان}} = x_1 x_2 = 1$
 $\Rightarrow \frac{p}{q} = 4$

$(\sqrt{2x} + \frac{1}{\sqrt{2x}} + 1)(\sqrt{2x} - 1) = \sqrt{2x}$

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

$\sqrt{2x} - \frac{1}{\sqrt{2x}} = \sqrt{2x}$

$x - 1 = 2x = x^2 - 2x - 1 = 0$

$\boxed{x = 1 \text{ یا } x = -1}$

$$x_r = rx_1 \quad rx_1 - ax_1 + \epsilon = 0 \quad \begin{cases} rx_1 - ax_1 + \epsilon = 0 \\ rx_1 - \epsilon ax_1 + \epsilon = 0 \\ r\epsilon x_1 - \epsilon ax_1 = 0 \end{cases} \quad \begin{aligned} & rx_1(1 - a) = 0 \\ & rx_1 = 0 \quad \text{or} \quad 1 - a = 0 \end{aligned}$$

$$rx_1 - ax_1 + \epsilon = \frac{a^r}{\epsilon^r} - \frac{a^r}{1^r} + \epsilon = 0 \Rightarrow \frac{-a^r}{\epsilon^r} = -\epsilon \quad \frac{a^r}{\epsilon^r} = \epsilon \quad a^r = \epsilon^r \epsilon \quad a = \pm 1$$

اختلاف مقادیر a

$a > 0 \rightarrow$...

$$y = ax_1 + (1+a)x$$

$$\Delta \leq (1+a)^r \leq \dots$$

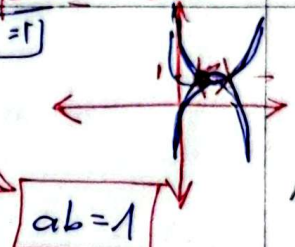
... a ...

$$y = x_1 + ax_1 - 1 \quad \frac{b}{a_1} = \frac{b}{a_r} = \frac{-a}{r} = \frac{1}{-1} = -1 \Rightarrow a = 1$$

$$y = -2x_1 - 2x_2 + b$$

$$x_1 + 2x_2 - 1 = 0 \Rightarrow x_1 + 2x_2 = 1 \quad (x_1 + 2)(x_1 - 1) = 0$$

$$-x_1 - 2x_2 + b = 0 \Rightarrow -1 - 2 + b = 0 \Rightarrow b = 3$$



برای اینکه دو خط یکدیگر را قطع کنند! درستی معادله را به معادله اول اضافه می‌کنیم

$$\begin{aligned} rx_1 - ax_1 + b &= 0 \\ rx_1 + ax_1 - y &= 0 \end{aligned} \quad \begin{aligned} rx_1 - ax_1 + b &= 0 \\ rx_1 + ax_1 - y &= 0 \end{aligned}$$

$$\frac{a}{r} = \frac{1}{r} + 1 \Rightarrow a = 1$$

$$\left[\frac{ab}{\epsilon} \right] = \left[\frac{-4}{\epsilon} \right] = [-1, 0] = -1$$

$$P_1 = (x + 10)(y + 10) = \frac{x}{a} + \frac{y}{r} = \frac{b}{r} = -1$$

$$\begin{aligned} x_1 + 4x_2 + m &= x_1 + 7x_2 - 7m \\ \epsilon x &= -\epsilon m \\ x &= -m \end{aligned} \quad \begin{aligned} x_1 + x_2 &= \frac{-b_1}{a_1} = -4 \\ x_1 + x_2 &= \frac{-b_2}{a_2} = -2 \end{aligned} \Rightarrow \begin{aligned} -1 - (-4) &= 3 \\ x_1 + x_2 - x_1 - x_2 &= 3 - 2 \end{aligned}$$

$$m^r - 4m + m = m^r - 0m = m(m - 0) \Rightarrow m = 0$$

$$\frac{x_1 + 0}{-7}, \frac{x_2 + 0}{-1} \quad x_1 = -11 \quad x_2 = -7 \quad |x_1 - x_2| = |-11 - (-7)| = 4$$