

$$y = ax^2 + bx + c$$

$$\begin{vmatrix} -1 & 1 \\ 9 & 1 \end{vmatrix}$$

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

$$\begin{cases} 1 \\ 9 \end{cases} \Rightarrow a - b + c = 9 \rightarrow c - a = 9 \Rightarrow c = a + 9$$

$$\begin{cases} 1 \\ 1 \end{cases} \Rightarrow 9a + 2b + c = 1 \rightarrow 9a + 4a + a = -1 \quad 14a = -1 \quad a = -\frac{1}{14} \quad b = -\frac{1}{7} \quad c = \frac{13}{14}$$

$$y = -\frac{1}{14}x^2 - x + \frac{13}{14}$$

$$y = 12x^2 + mx + m + 4 = 0$$

$$m^2 - 4(m+4) > 0$$

$$m^2 - 4m - 16 > 0 \quad (m-12)(m+4) > 0$$

$$m \sim (m < -4) \quad (m > 12)$$

$$\frac{-m}{2} > 0 \quad (m < 0)$$

$$\frac{m+4}{2} > 0 \Rightarrow m+4 > 0 \quad (m > -4)$$

$$\begin{aligned} a &> 0 \\ \Delta &> 0 \\ S &> 0 \\ P &> 0 \end{aligned}$$

$$\begin{array}{c|c|c} -4 & 12 & \\ \hline + & - & + \end{array}$$

$$\sim \text{اندر } m \in (-4, -12) \quad -4 < m < -12$$

$$\Delta > 0 \quad (12m-1)^2 - 12(12-m) > 0$$

$$12m^2 + 24m - 144 > 0$$

$$\begin{array}{c|c|c} \frac{-12-\sqrt{144}}{2} & \frac{-12+\sqrt{144}}{2} & \\ \hline + & - & + \end{array}$$

$$\frac{-12 \pm \sqrt{48+144}}{2} = \frac{-12 \pm \sqrt{192}}{2}$$

$$m > \frac{-12+\sqrt{192}}{2} \quad m < \frac{-12-\sqrt{192}}{2}$$

$$\alpha + \beta = \frac{1}{\alpha\beta} \rightarrow \frac{12m}{2} = \frac{1}{2-m} \rightarrow 12m^2 - 8m - 1 = 0$$

$$\begin{aligned} &\text{جواب } -1 \\ &\text{جواب } \rightarrow \frac{c}{a} = \left(\frac{1}{12}\right) \quad \text{جواب } m = \frac{1}{12} \end{aligned}$$

$$x^2 - x - 1 = 0 \rightarrow S = 1 \quad P = -1$$

$$S_1 = x_1^2 + x_2^2 + \frac{1}{x_1} + \frac{1}{x_2} = S^2 - 2SP + \frac{S}{P} = -\frac{1}{2} + 12 = \frac{23}{2}$$

$$P_1 = (x_1^2 + \frac{1}{x_1})(x_2^2 + \frac{1}{x_2}) = (x_1x_2)^2 + x_1^2 + x_2^2 + \frac{1}{x_1x_2} = -1 - \frac{1}{2} = -\frac{3}{2}$$

$$x^2 - \frac{23}{2}x - \frac{3}{2} = y$$

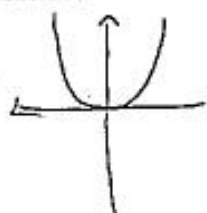
$$\left(\frac{\sqrt{x^2+1} + \sqrt{x^2}}{\sqrt{x^2}}\right) \left(\sqrt{x^2+1}\right) = \sqrt{x^2} \Rightarrow \frac{x^2+1}{\sqrt{x^2}} = \sqrt{x^2}$$

$$x^2 - 2x - 1 = 0 \rightarrow x_1 + x_2 = 2$$

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

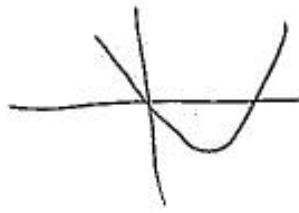
$$x_1 x_2 = \frac{1}{a} \leadsto x_1 x_2 = \frac{1}{a} \quad x_1 x_2 = \frac{1}{a} \leadsto x_1 x_2 = \frac{1}{a} \quad S = \frac{1}{a}$$

$$\left. \begin{aligned} S_1 &= \frac{a}{1} \Rightarrow a = 1 \\ S_2 &= -\frac{1}{a} \Rightarrow a = -1 \end{aligned} \right\} \Delta = (-1) = 1$$



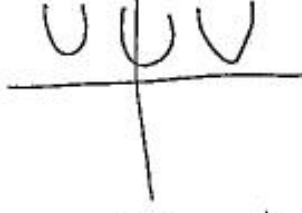
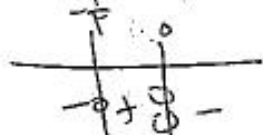
$$x_1 + x_2 = 0$$

$$a = -\frac{1}{1} \Rightarrow a = -1$$



$$\Delta > 0$$

$$S = \frac{1 + \sqrt{1 + 4}}{2} > 0$$



$$\Delta > 0$$

$$(x_1 + x_2) x_1$$

صغير من

$$\leadsto (-\frac{1}{1}, 0) \Rightarrow \text{نقطة}$$

$$y = -x^2 - 2x + b$$

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

$$y = x^2 + ax - 1 \quad y = x^2 + 2x - 1$$

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

$$x_1 = -1 \Rightarrow -1 + 4 + b = 1 \Rightarrow b = 2$$

$$ab = 1$$

$$x^2 - ax + b = 0$$

$$x_1 = \frac{1}{1} \quad x_2 = \frac{1}{1}$$

$$x^2 + ax - 4 = 0$$

$$S = -\frac{1}{1} \quad P = -\frac{1}{1}$$

$$\left[\frac{-4}{1} \right] = -4$$

$$S = x_1 + x_2 + 1 = \frac{1}{1} = \frac{a}{1} \leadsto a = 1$$

$$P = (x_1 + \frac{1}{1})(x_2 + \frac{1}{1}) = \frac{1}{1} + \frac{1}{1}(x_1 + x_2) + \frac{1}{1} = \frac{1}{1} \Rightarrow \frac{b}{1} \Rightarrow b = -4$$

$$x^2 + 4x + m = 0$$

$$\alpha, \beta$$

$$\alpha + \beta = -4$$

$$\alpha = -4 - \beta$$

$$x^2 + 4x - 1 = 0$$

$$\alpha, \beta'$$

$$\alpha + \beta' = -1$$

$$\alpha = -1 - \beta'$$

$$-1 - \beta' = -4 - \beta$$

$$\beta' - \beta = 4 - 1 = 3$$