

$$x_3 = \frac{-1}{1} = -1 \Rightarrow b = -1$$

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

$$y = 9 = a - 1 + c = c - a \quad (1, 1) \Rightarrow 1 = a + 1 + c = 1a + c$$

$$14a = -1 \Rightarrow a = -\frac{1}{14} \Rightarrow b = -1$$

$$9 = c + \frac{1}{14} \Rightarrow c = \frac{127}{14} \Rightarrow y = -\frac{1}{14}x^2 - x + \frac{127}{14}$$

$$2x^2 + mx + 1 - 4 = 0 \quad \alpha, \beta \sim \alpha > 0 \quad \beta > 0$$

$$\Rightarrow \alpha + \beta > 0 \Rightarrow \frac{-m}{2} > 0 \Rightarrow m < 0 \quad (1) \quad (1) \quad (2) \quad (3) \quad (4) \Rightarrow -4 < m < -1$$

$$\alpha\beta > 0 \Rightarrow \frac{m+1}{2} > 0 \Rightarrow m > -1 \quad (2)$$

$$\Delta > 0 \Rightarrow m^2 - 4m + 4 > 0 \Rightarrow (m-2)^2 > 0 \Rightarrow m \neq 2 \Rightarrow m < -1 \quad (3)$$

$$m > -1 \quad (4)$$

$$2x^2 + (2m-1)x + 1 - m = 0$$

$$\Delta > 0 \Rightarrow 4m^2 - 4m + 1 - 2(2m-1) > 0 \Rightarrow 4m^2 - 4m + 1 - 4m + 2 > 0 \Rightarrow 4m^2 - 8m + 3 > 0$$

$$\alpha + \beta = \frac{1-m}{2} \Rightarrow \frac{1-m}{2} = \frac{1}{2} \Rightarrow 1-m = 1 \Rightarrow m = 0 \Rightarrow 2x^2 - x + 1 = 0 \Rightarrow 2x^2 - x - 1 = 0$$

$$\Delta > 0 \Rightarrow (m-1)^2 - 4 > 0 \Rightarrow (m-1)^2 > 4 \Rightarrow m-1 > 2 \Rightarrow m > 3 \quad (5)$$

$$(m-1)^2 > 4 \Rightarrow m-1 < -2 \Rightarrow m < -1 \quad (6)$$

$$a = at^2 \Rightarrow at^2 - at - 1 = 0 \Rightarrow at^2 = at + 1$$

$$at^2 = at + 1 \Rightarrow at^2 = at + 1 \Rightarrow at^2 = at + 1$$

$$y_1 = at^2 + \frac{1}{at} = at + \frac{1}{at}$$

$$y_2 = at^2 + \frac{1}{at} = at + \frac{1}{at}$$

$$\frac{b}{a} = y_1 + y_2 = at + \frac{1}{at} + at + \frac{1}{at} = 2at + \frac{2}{at} = 2a \left(t + \frac{1}{t} \right)$$

$$t = \sqrt{m} \Rightarrow (t^2 + \frac{1}{t^2} + 1)(t^2 - 1) = t^4 - 1 \Rightarrow t^4 - 1 = 15t^2 \Rightarrow t^4 - 15t^2 - 1 = 0 \Rightarrow t^2 = \frac{15 \pm \sqrt{225+4}}{2} = \frac{15 \pm 17}{2} = 16 \Rightarrow t = 4$$

$$t = \sqrt{m} \Rightarrow (t^2 + \frac{1}{t^2} + 1)(t^2 - 1) = t^4 - 1 \Rightarrow t^4 - 1 = 15t^2 \Rightarrow t^4 - 15t^2 - 1 = 0 \Rightarrow t^2 = \frac{15 \pm \sqrt{225+4}}{2} = \frac{15 \pm 17}{2} = 16 \Rightarrow t = 4$$

$$x^2 - ax + 1 = 0 \quad \alpha = \beta \quad \alpha + \beta = 1 \quad \alpha\beta = 1$$

$$\alpha\beta = \frac{1}{\beta} = 1 \quad \beta = 1 \quad \alpha + \beta = 1 \quad \alpha + 1 = 1 \quad \alpha = 0$$

$$\frac{a}{\beta} = \frac{1}{\beta} \Rightarrow a = 1 \quad 1 - (-1) = 2$$

$$y = ax^2 + (3+2a)x \quad \text{از این معادله می توانیم بنویسیم} \quad \alpha > 0 \quad \alpha > 0$$

$$0 < \alpha < 1 \quad \alpha > 0 \quad \alpha < 1 \quad \alpha > 0 \quad \alpha < 1 \quad \alpha > 0 \quad \alpha < 1$$

$$y = x^2 + ax - 2 \quad \text{مشتق می گیریم} \quad y' = 2x + a = 0 \quad x = -\frac{a}{2}$$

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

$$y = -x^2 - 2m + b \quad y = 1 \quad 1 = -x^2 - 2m + b \quad \alpha = 1 \quad \alpha = -2$$

$$\alpha > 0 \quad \alpha > 0 \quad \alpha > 0 \quad \alpha > 0 \quad \alpha > 0 \quad \alpha > 0 \quad \alpha > 0 \quad \alpha > 0$$

$$P_1 = (\alpha' + \frac{1}{\beta'}) \quad P_2 = (\beta' + \frac{1}{\alpha'}) \quad \frac{a}{\beta} = \frac{-a}{\beta} + 1 = \frac{1}{\beta} \Rightarrow a = 1$$

$$x^2 + 401x + 1 = 0 \quad \alpha, \beta \quad \alpha + \beta = -401$$

$$x^2 + 2m - 3 = 0 \quad \alpha, \beta' \quad \alpha + \beta' = -2$$

$$| \alpha + \beta' | - | \alpha + \beta | = | \beta' - \beta | = -2 - (-401) = 399$$