

رأی: $(-1, 9)$ و $(3, 1)$ $y = ax + b$
 $\frac{-b}{a} = 1 \rightarrow \frac{b}{a} = -1 \rightarrow b = -a$
 $\frac{-b}{a} = 9 \rightarrow \frac{9a - b}{a} = 9 \rightarrow 9a - b = 9a \rightarrow 9a - (-a) = 9a \rightarrow 10a = 9a \rightarrow a = 9$
 $1 = 9a + b \rightarrow 1 = 9(9) + b \rightarrow 1 = 81 + b \rightarrow b = -80$
 $c = 9 - \frac{1}{9} \rightarrow c = \frac{81-1}{9} = \frac{80}{9}$
 $y = \frac{1}{9}x^2 - x + \frac{80}{9}$ جواب

$2x^2 + mx + m + 4 = 0$ $\Delta \geq 0$ $S \geq 0$ $P \geq 0$ $\Delta = b^2 - 4ac \rightarrow b^2 - 4ac \geq 0 \rightarrow m^2 - 4(m+4) \geq 0$
 $(m-12)(m+4) \geq 0$ $\frac{-4}{+} \frac{12}{-}$ $\rightarrow m \in (-\infty, -4) \cup (12, +\infty)$ $S = \frac{-b}{a} \rightarrow S = \frac{-m}{2} \rightarrow \frac{-m}{2} \geq 0 \rightarrow m \leq 0$
 $P = \frac{c}{a} = \frac{m+4}{2} \rightarrow \frac{m+4}{2} \geq 0 \rightarrow m+4 \geq 0 \rightarrow m \geq -4$ $m \in (-4, 0]$ جواب

$rx^2 + (r-1)x + r-m = 0$ $\Delta \geq 0$ $S = \frac{1}{r} \rightarrow S = \frac{-b}{a} = \frac{1-r}{r}$ $P = \frac{c}{a} = \frac{r-m}{r}$
 $\frac{1-m}{r} = \frac{1}{r-m} \rightarrow q = (1-r)(r-m) \rightarrow q = r-m-rm+m^2 \rightarrow rm^2 - 2rm - 1 = 0$ $m^2 - 2m - 1 = 0$
 $(m-1)(m+1) = 0 \rightarrow (rm-1)(m+1) = 0$ $\frac{1}{r} \rightarrow \frac{1}{r-m}$ $\rightarrow rx^2 - rx + r = 0 \rightarrow \Delta < 0$
 $rx^2 + 4x - \frac{r}{r} = 0 \rightarrow \Delta > 0$ $m = \frac{1}{r}$ جواب

$x = x^r - r \rightarrow x^r - x - r = 0$ $S = 1$ $P = -r$ $x_1 + x_2 = 1$ $x_1 x_2 = -r$ $x^r + \beta^r = S^r - rSP$ $x^r + \beta^r = S^r - rP$
 $x_1^r + \frac{1}{n_1}, x_2^r + \frac{1}{n_2}$ $S_r = x_1^r + \frac{1}{n_1} + x_2^r + \frac{1}{n_2} = x_1^r + x_2^r + \frac{x_1 + x_2}{x_1 x_2} = (x_1 + x_2)^r - r(x_1 + x_2) \frac{(x_1 + x_2)}{-r} = 1 + 1r = 1r$
 $P_r = (x_1^r + \frac{1}{n_1})(x_2^r + \frac{1}{n_2}) = \frac{x_1^r x_2^r}{(x_1 x_2)^r} + \frac{x_1^r + x_2^r}{x_1 x_2} + \frac{1}{x_1 x_2} = -4r + 1 + \frac{1}{-r} = \frac{-4r^2 - 1}{r}$
 $y = x^r - sn + p \rightarrow y = x^r - \frac{4r^2 - 1}{r}x - \frac{r+1}{r}$

x_1, x_2 $(\sqrt[3]{x^3} + \frac{1}{\sqrt[3]{x^3}} + 1)(\sqrt[3]{x^3} - 1) = r\sqrt[3]{x^3}$ $\rightarrow \left(\frac{\sqrt[3]{x^3} + 1 + \sqrt[3]{x^3}}{\sqrt[3]{x^3}} \right) (\sqrt[3]{x^3} - 1) = r\sqrt[3]{x^3}$
 $\Delta = 1$ $\Delta = 1$

$\frac{x^3 - 1}{\sqrt[3]{x^3}} = r\sqrt[3]{x^3} \rightarrow x^3 - 1 = rx^3 \rightarrow x^3 - rx^3 - 1 = 0 \rightarrow x_1 = \frac{r + \sqrt{r^2 + 4}}{2} = \frac{r + 2\sqrt{r}}{2} = \frac{r(1 + \sqrt{r})}{2} = 1 + \sqrt{r}$
 $x_2 = \frac{r - 2\sqrt{r}}{2} = \frac{r(1 - \sqrt{r})}{2} = 1 - \sqrt{r}$ $x_1 + x_2 = 1 + \sqrt{r} + 1 - \sqrt{r} = 2$ جواب

$$\alpha = 2\beta$$

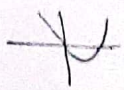
$$2x^2 - \alpha x + 4 = 0$$

$$\alpha\beta = \frac{c}{a} \rightarrow 2\beta^2 = \frac{4}{2} \rightarrow \beta^2 = \frac{2}{2} \rightarrow \beta = \frac{\pm 2}{2}$$

$$\beta = \frac{2}{2} \rightarrow \frac{4}{2} - \frac{2}{2}\alpha + 4 = 0 \rightarrow \frac{2-2\alpha+4}{2} = 0 \rightarrow 2\alpha = 6 \rightarrow \alpha = 3$$

$$\beta = \frac{-2}{2} \rightarrow \frac{4}{2} + \frac{2}{2}\alpha + 4 = 0 \rightarrow \frac{2+2\alpha+4}{2} = 0 \rightarrow 2\alpha = -6 \rightarrow \alpha = -3$$

$$\alpha_1 - \alpha_2 = 3 - (-3) = 6 \rightarrow \boxed{6}$$



$$c = 0$$

$$y = ax^2 + (2+2a)x$$

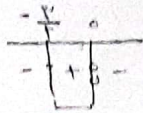
$$a > 0$$

$$\Delta > 0$$

$$S > 0$$

$$p > 0$$

$$S = \frac{-b}{a} \rightarrow \frac{-2-2a}{a} > 0$$



$$a \in (\frac{-2}{2}, 0)$$

$$a > 0 \rightarrow \frac{-2}{2} < a < 0$$

همه اشتباهی دارند. همه جواب درست است. این رابطه برقرار نیست.

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

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

$$S = \frac{-b}{2a} = \frac{-b}{2} \rightarrow \frac{-b}{2} = \frac{2}{2} \rightarrow \boxed{b = 2}$$

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

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

$$y = 1 \rightarrow x^2 + 2x - 2 = 1 \rightarrow x^2 + 2x - 3 = 0$$

$$y = 1 \rightarrow -x^2 - 2x + b = 1 \rightarrow -x^2 - 2x + b - 1 = 0$$

$$b - 1 = 3 \rightarrow \boxed{b = 4}$$

$$ab = 2 \times 4 = 8 \rightarrow \boxed{8}$$

جواب

$$2x^2 - \alpha x + b = 0$$

$$2x^2 + \alpha x - 4 = 0$$

$$-\frac{a}{2} + 1 = \frac{a}{2} \rightarrow \frac{2-a}{2} = \frac{a}{2} \rightarrow 2-a=a \rightarrow 2a=2 \rightarrow \boxed{a=1}$$

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

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

$$2x^2 + x - 4 = 0 \rightarrow x^2 + x - 2 = 0 \rightarrow (x+2)(x-1) \rightarrow (x+2)(2x-4)$$

$$-2 + 0.5\Delta = -1.5$$

$$\frac{1}{2} + 0.5\Delta = \frac{1}{2} + \frac{1}{2} = 1$$

$$\frac{1}{2} + 0.5\Delta = \frac{1}{2} + \frac{1}{2} = 1 \rightarrow \frac{1}{2} \times 2 = 1 \rightarrow p$$

$$\frac{1}{2} + 0.5\Delta = \frac{1}{2} + \frac{1}{2} = 1 \rightarrow \frac{1}{2} \times 2 = 1 \rightarrow p$$

این رابطه ها معادله های اول و دوم را حل می کند. اما به معادله های دیگر هم باید توجه کرد. معادله های اول و دوم را حل می کند. اما به معادله های دیگر هم باید توجه کرد.

$$p = \frac{c}{a} \rightarrow -3 = \frac{c}{a} \rightarrow -1 = \frac{b}{2} \rightarrow b = -2$$

$$\left[\frac{ab}{2}\right] = \left[\frac{1 \times -2}{2}\right] = \left[\frac{-2}{2}\right] = \left[\frac{-1}{1}\right] = \left[-1\right] = \boxed{-2}$$

جواب

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

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

$$\frac{x_1}{x_2} = \frac{1}{2}$$

$$x_1 + x_2 = -2 \rightarrow x_1 + x_2 = -2 \rightarrow \frac{x_1 + x_2}{-2} = \frac{x_1 + x_2}{-2}$$

$$S = \frac{-b}{a} = -4$$

$$-2 + 2 = 0 \rightarrow \boxed{0}$$