

۳۴ و ۴ → ریشه ها

$$3x^2 - ax + 1 = 0 \rightarrow S = \frac{a}{3}$$

$$S = 4a$$

$$P = 3a^2$$

$$3a^2 = \frac{4}{3} \rightarrow a^2 = \frac{4}{9} \rightarrow a = \pm \frac{2}{3}$$

ریشه ها $\frac{2}{3}$ و $\frac{2}{3}$

ریشه ها $-\frac{2}{3}$ و $-\frac{2}{3}$

$$\Rightarrow \frac{a}{3} \begin{cases} \frac{2}{3} + \frac{2}{3} = \frac{4}{3} \rightarrow a = 4 \\ -\frac{2}{3} - \frac{2}{3} = -\frac{4}{3} \rightarrow a = -4 \end{cases}$$

۴ - (-۴) = ۸ → جواب

$$\frac{1}{\sqrt{a}} + \frac{1}{\sqrt{b}} = \frac{\sqrt{a} + \sqrt{b}}{\sqrt{ab}} = \frac{\sqrt{S + 2\sqrt{P}}}{\sqrt{P}} = 2 \xrightarrow{\text{قوان}} \frac{S + 2\sqrt{P}}{P} = 2$$

$$S = \frac{m+12}{24}$$

$$P = \frac{1}{24}$$

$$\rightarrow \frac{\frac{m+12}{24} + \frac{12}{24}}{\frac{1}{24}} = 2 \rightarrow m + 12 = 2 \rightarrow m = -10$$

$$mx^2 + 3x + 1 = 0 \rightarrow \text{ضرب} = \frac{1}{m} = \frac{1}{-1} = -1 \rightarrow \text{جواب}$$

$$a^2 + 2(a^2 + b^2) = 18 + 12\sqrt{2} \rightarrow a^2 + 2(S^2 - 2P) = 18 + 12\sqrt{2}$$

$$a = \frac{-4 - \sqrt{34 - 4a}}{2} \Rightarrow a^2 = \frac{34 + 34 - 4a + 12\sqrt{34 - 4a}}{4} \rightarrow \frac{12\sqrt{34 - 4a}}{4} = \frac{12\sqrt{34 - 4a}}{4}$$

$$3\sqrt{34 - 4a} = 12\sqrt{2} \rightarrow 34 - 4a = 32 \rightarrow a = 1 \rightarrow \text{جواب}$$

چون در ریشه دارد پس تجربه این متداول یک معادله خط و یک معادله درجه دو با $\Delta = 0$ است :

$$(x-a)(2x-b)^2 = (x-a)(4x^2 - 4bx + b^2) \rightarrow 4x^3 + b^2x - 4bx^2 + (4a - b^2)x - b^2a + 4ax$$

$$\Rightarrow 4x^3 - 4ax^2 + (b^2 + 4a)x - b^2a = 4x^3 + kx^2 - 4x - 1$$

$$\begin{cases} b^2 + 4a = -4 \\ -b^2a = 1 \end{cases} \rightarrow \frac{1}{a} + 4a = -4 \xrightarrow{\times a} 1 + 4a^2 + 4a = 0 \rightarrow 4a^2 + 4a + 1 = 0$$

$$-a = k(*)$$

$$b^2a = 1 \rightarrow b^2 = \frac{1}{a}$$

$$k = 2, \frac{1}{2}$$

$$\begin{cases} a = -\frac{1}{2} \\ a = -2 \end{cases} \xrightarrow{\text{معادله (*)}} \begin{cases} a^2 + 4a + 1 = 0 \\ (a+1)(a+1) = 0 \end{cases}$$

$$x^2 = t \quad t^2 - 7t - 8 = 0 \rightarrow t = \frac{7 \pm \sqrt{49}}{2} \rightarrow \frac{7 - \sqrt{49}}{2} < 0 \text{ غرض}$$

$$x = \pm \sqrt{\frac{7 + \sqrt{49}}{2}} \rightarrow S = 0 \quad P = -\frac{7 + \sqrt{49}}{2}$$

$$2P^2 - 3SP + 2S = 2x \frac{49 + 49 + 12\sqrt{49}}{4} = 29 + 7\sqrt{49} \rightarrow \text{جواب}$$

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$$2m^r - ax + b = 0 \rightarrow \text{ریشه ها: } \alpha + 0, \delta, \beta + 0, \delta$$

$$2ax^r + ax - 4 = 0 \rightarrow \text{ریشه ها: } \alpha, \beta$$

$$\rightarrow \alpha + \beta = \frac{-a}{2a} = -\frac{1}{2} \rightarrow \alpha + 0, \delta + \beta + 0, \delta = \alpha + \beta + 1 = -\frac{1}{2} = \frac{a}{2} \rightarrow \boxed{a = 1}$$

$$\rightarrow 4\beta = \frac{-4}{2a} = -\frac{4}{2} = -2 \rightarrow (0, \delta + \alpha)(0, \delta + \beta) = 0, \delta + 1 + \alpha(\beta + 1) + 4\beta = -2$$

$$\Rightarrow \frac{b}{2} = -2 \rightarrow \boxed{b = -4} \quad \left[\frac{ab}{2} \right] = \left[\frac{-4}{2} \right] = -2 \rightarrow \text{جواب}$$

$$2. \beta^r + 2. \alpha^r + 2. \beta^r - 2. \beta = 17 \rightarrow 2. (\alpha^r + \beta^r) + 2. (\beta^r - \beta) = 17$$

$$2. (S^r - cP) + 2. (\beta^r - \beta) = 17$$

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

$$\beta^r - \beta = \beta(\beta - 1) = -\alpha\beta = -\left(\frac{-b}{a}\right) = \frac{b}{a} \quad \alpha + \beta = 1 \rightarrow \beta - 1 = -\alpha$$

$$2. \left(1 + \frac{2b}{a}\right) + \frac{2. b}{a} = 2. + \frac{4. b}{a} = 17 \rightarrow \frac{b}{a} = \frac{1}{2}$$

$$\frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{a^2 + 4ab}}{|a|} = \frac{1 \pm \sqrt{1 + 4 \cdot \frac{b}{a}}}{1} = \sqrt{1 + 2 \cdot \frac{b}{a}} = \frac{2}{\sqrt{2}} \rightarrow \text{جواب}$$

$$x^r - (a+1)x + a = 0 \rightarrow \text{ریشه ها: } \alpha, \alpha + 1$$

$$S \Rightarrow \alpha + \alpha + 1 = a + 1 \rightarrow \alpha = \frac{a-1}{2}$$

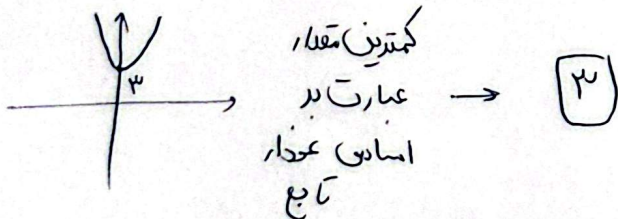
$$P \Rightarrow \alpha(\alpha + 1) = a \rightarrow \left(\frac{a-1}{2}\right)^2 + a - 1 - a = 0 \rightarrow a^r - 2a - 1 = 0 \rightarrow (a-2)(a+1) = 0$$

$$\rightarrow \alpha^r - 2\alpha + 1 = 0 \rightarrow \boxed{\alpha = 1, 3} \rightarrow \text{جواب های معادله اول} \quad 1 \times 3 = 3 \rightarrow \text{ضرب ریشه ها معادله اول} \quad a = 2 \quad a = -1$$

$$P \Rightarrow \alpha^r - 10\alpha + b = 0 \rightarrow \text{ریشه ها: } y, y + 1 \Rightarrow 2y + 1 = 10 \rightarrow \boxed{y = 2, 4} \rightarrow \text{جواب های معادله دوم} \quad 2 \times 4 = 8 \rightarrow \text{ضرب ریشه ها معادله دوم} \quad 22 - 2 = 20$$

$$x^r + x - 1 - m^r = 0 \rightarrow S = -1, P = -m^r - 1$$

$$\alpha^r + \beta^r \rightarrow S^r - cP \rightarrow 1 - 2(-m^r - 1) = 1 + 2m^r + 2 = 2m^r + 3$$



$$\alpha_s = \frac{-\delta + 3}{2} = -1 \quad S(-1, 1) \quad y = a(x+1)^r + 1 \Rightarrow y = ax^2 + 2ax + a + 1$$

$$\alpha^r + \beta^r = S^r - cP = 0 \Rightarrow \left(\frac{-2a}{a}\right)^2 - 2\left(\frac{a+1}{a}\right) = 0 \Rightarrow 4 - 2\left(\frac{a+1}{a}\right) = 0$$

$$\frac{a+1}{a} = \frac{1}{2} \rightarrow -a = 2a + 2 \rightarrow -3a = 2 \rightarrow \boxed{a = -\frac{2}{3}}$$

$$y = -\frac{2}{3}(x+1)^r + 1 \xrightarrow{x=0} = -\frac{2}{3} \times 1 + 1 = \boxed{\frac{1}{3}} \rightarrow \text{جواب}$$