

۱۴, ۱۷, ۱۹

$$x_5 = 2 = \frac{-b}{2a} = \frac{-1}{a-1} \quad \frac{-b}{2a} = 2 \rightarrow a = \frac{2}{5} \quad \frac{1}{5}x^2 + u + 3 \rightarrow \begin{cases} u=4 \\ u=-2 \end{cases}$$

$$2a - 2 = -1$$

$$a = \frac{1}{2} \Rightarrow y = \frac{-x^2}{2} + x + 3$$

$$\Delta = 1 + 4 = 5$$

$$x_1 = \frac{\sqrt{5} - 1}{-1} = 1 - \sqrt{5} \quad (x_1 < 0)$$

$$x_2 = \frac{-\sqrt{5} - 1}{-1} = 1 + \sqrt{5} \quad (x_2 > 0)$$

$$\begin{aligned} a < 0 & \quad \Delta > 0 \\ m < 0 & \quad 2a - 4m^2 > 0 \end{aligned}$$

①

$$m^2 < \frac{2a}{4}$$

$$-\frac{a}{2} < m < \frac{a}{2}$$

②

$$\textcircled{1} \cap \textcircled{2} = \left(-\frac{a}{2}, 0\right)$$

$$S = \frac{2 - \sqrt{5}}{2} + \frac{2 + \sqrt{5}}{2} = 2$$

$$P = \frac{2 - \sqrt{5}}{2} \times \frac{2 + \sqrt{5}}{2} = \frac{4 - 5}{2} = -\frac{1}{2}$$

$$\Rightarrow y = x^2 - Sx + P \Rightarrow y = x^2 - 2x + \frac{1}{2} \rightarrow \text{ضرایب صحیح}$$

$$x^2 - 4x + \frac{m}{2} + 1 = 0$$

$$S = 4$$

$$P = \frac{m+2}{2}$$

$$2a^2 + B^2 = 12$$

$$2a^2 + a^2 + B^2 = 12$$

$$2a^2 + S^2 - 2P = 12$$

$$2a^2 + 16 - 2\left(\frac{m+2}{2}\right) = 12$$

$$2a^2 = m - 2$$

$$a = \sqrt{\frac{m-2}{2}} \Rightarrow \left(\sqrt{\frac{m-2}{2}}\right)^2 - 4\sqrt{\frac{m-2}{2}} + m + 2 = 0 \Rightarrow \text{اذا در بالا}$$

$$m^2 - 4\sqrt{\frac{m-2}{2}} + m + 2 = 0$$

$$m = \sqrt{\frac{m-2}{2}}$$

$$m^2 = \frac{m-2}{2} \Rightarrow m^2 - \frac{m-2}{2} = 0$$

$$m^2 - \frac{1}{2}m + 1 = 0 \quad (m-2)^2 = 0 \Rightarrow m = 2$$

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

$$b = -4a$$

$$\frac{4a^2 - b^2}{4a} = 9$$

$$20a - 16a^2 = 36a$$

$$16a^2 = -16a$$

$$a^2 = -a$$

$$a = -1 \quad / \quad 0$$

$$(a+1)(a+1) = 0$$

$$b = -4a = 4$$

$$\Rightarrow y = -x^2 + 4x + 5$$

$$x^2 - 4x - 5 = 0$$

$$(x-5)(x+1) = 0$$

$$x = 5 / -1 \quad \frac{-1 \pm \sqrt{1+20}}{2} = \frac{-1 \pm \sqrt{21}}{2} \Rightarrow (-1, 5)$$

$$\begin{aligned} \alpha\beta^r - \nu\beta + 4\beta &= 0 & -\frac{1}{\beta^r} &= \frac{-1^r - 4\beta^r}{\beta^r} \\ \alpha\beta^r &= -\nu\beta & \Downarrow + &= \beta^r \\ p &= -\nu & -1^r + -4 + \nu &= -1 \\ \alpha^r - \nu\alpha + 4\beta &= 0 & \alpha + \nu + 1^r + -1 &= 0 \\ \alpha &= \frac{\nu}{\beta} \Downarrow & \Delta &= 1^r 1^r \\ \frac{-1}{\beta^r} + \frac{1^r}{\beta} + 4\beta &= 0 & \alpha_1 &= \frac{1^r - 1^r}{1^r} = \frac{r}{9} = \beta^r \Rightarrow \beta = \pm \frac{r}{\nu} \Rightarrow \beta = \frac{r}{\nu} \quad \alpha = \frac{-r}{\beta} = \frac{-\nu}{r} \\ & & \alpha + \beta &= \frac{r}{\nu} - \nu = \boxed{\frac{-\nu}{r}} \end{aligned}$$

$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\nu}{r}$ (1,2) 6

$$\begin{aligned} \alpha^r + m\alpha - \nu m &= 0 & \beta^r + m\beta - \nu m &= 0 \\ \alpha^r + m\alpha &= \nu m & \Rightarrow \nu m = \nu m &\Rightarrow \alpha^r + m\alpha = \beta^r + m\beta \\ p &= -\nu m & \bullet m\beta + 1 + m\alpha &= \beta^r + \alpha^r - 1 \\ S &= -m & \alpha^r + \beta^r - 1^r &= m(\alpha + \beta) \\ & & s^r - \nu p - 1^r &= m S \\ & & m^r + \nu m - 1^r &= -m^r \\ & & \nu m^r + \nu m - 1^r &= 0 \\ & & m^r + \nu m - 1 &= 0 \quad m_1 = \frac{r - \nu}{r} = \nu \bar{G} \bar{E} \\ & & \Delta = 1^r + \nu^2 = \nu^2 &\Rightarrow m_2 = \frac{-r - \nu}{r} = -\nu \bar{G} \bar{E} \end{aligned}$$

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$$\begin{aligned} m < 0 & \quad \frac{fac - b^r}{fa} = 1 & f(x) &= -\nu x^r + 1^r x - 1 + \nu \\ & fac - b^r = \nu a & f(x) &= -x^r + \nu x + \nu \\ & \nu m \left(\frac{m + 1^r}{r} \right) - 1^r = \nu \nu m & \Delta = 1^r + \nu^2 = 1^r &\Rightarrow \alpha_1 = \frac{r - \nu}{-r} = -1 \\ & \frac{m^r + 1^r m}{r} - 1^r = 1^r m & \alpha_2 &= \frac{-r - \nu}{-r} = \boxed{\nu = K} \\ & m^r + 1^r m - 1 = 1^r m & & (K \text{ ریشه بزرگتر است}) \\ & m^r - \nu m - 1 = 0 \Rightarrow m = \frac{-1 \pm \sqrt{1 + 4\nu}}{2} \Rightarrow m = -\nu \end{aligned}$$

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$$\begin{aligned} \frac{-b}{ra} &= \nu & \frac{fac - b^r}{fa} &= \nu \\ b &= -\nu a & \frac{-1^r b - b^r}{-b} &= \nu \\ & & b^r + \nu b &= \nu b \\ & & b^r - \nu b &= 0 \quad b = \nu / 0 \\ (y_s \neq 0) & \Rightarrow g = -\frac{\nu^r}{r} + \nu \alpha + \nu & \alpha &= \frac{-b}{r} = \frac{-\nu a}{r} \\ & y = -\alpha^r + \nu \alpha + 1 & & \\ S &= \nu & p &= -1 \end{aligned}$$

$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = \frac{-1}{r}$ (1,2) 9

$$\begin{aligned} \nu - 1^r a - 1 + \nu \alpha^r + 4\alpha + \nu &= 0 \quad (\alpha = \nu \text{ از معادله می باشد}) \\ \nu \alpha^r - \nu \alpha - 1 &= 0 & \therefore \alpha &= -\frac{1}{\nu} \Rightarrow \alpha^r - \frac{1}{\nu} \alpha + \frac{1}{\nu} = 0 \\ \alpha &= 1 / -\frac{1}{\nu} & \alpha &= \nu \Downarrow \\ & \text{"نمی شود"} & \alpha &= \nu \Downarrow \\ & \alpha = 1 \Rightarrow \alpha^r - 1^r \alpha + 1^r = 0 & & \\ & \Delta = 1^r - 4 = 1^r & & \end{aligned}$$

$\alpha = -\frac{1}{r} \rightarrow \alpha \left\{ \begin{array}{l} \nu \\ \frac{r}{\nu} \end{array} \right.$ (1,2) 10