

$$y_{\min} = \frac{-\Delta}{2a} = -\sqrt{1} \rightarrow -\Delta = -2 \rightarrow \Delta = 2$$

$$\Delta = b^2 - 4ac \Rightarrow b^2 + 1^2 = 2 \rightarrow b = 1$$

$$b = \pm 1 \rightarrow \boxed{b = \pm 1}$$

الف) $f(x) = x^2 + 2x + 3$

$$x^2 \Rightarrow t$$

$$t^2 + 2t + 3$$

$$\Delta = b^2 - 4ac \Rightarrow 2^2 - 12 = -8 < 0$$

ریشه حقیقی ندارد.

ب) $f(x) = (x-2)^2 - 2(x-2) - 15$

$$x^2 - 2x = t$$

$$t^2 - 2t - 15 \rightarrow (t-5)(t+3) = 0$$

$$x^2 - 2x = 5 \rightarrow x^2 - 2x - 5 = 0 \rightarrow x = 1 \pm \sqrt{6}$$

$$x^2 - 2x = -3 \rightarrow x^2 - 2x + 3 = 0 \rightarrow \boxed{x = 1 \pm \sqrt{2}}$$

$$\omega \Rightarrow \alpha, \frac{\alpha+2}{3}$$

$$S = \frac{b}{a} \Rightarrow \alpha + \alpha + 2 = 4 \Rightarrow 2\alpha + 2 = 4 \Rightarrow 2\alpha = 2 \rightarrow \alpha = 1$$

$$P = \frac{c}{a} \Rightarrow \frac{m}{2} = 1 \times 3 \Rightarrow \boxed{m = 6}$$

$$x^2 - 14x + 49 = 0 \rightarrow \Delta > 0 \checkmark$$

$$2\alpha - \beta = 2 \rightarrow \beta = 2\alpha - 2$$

$$\alpha + \beta = \frac{b}{a} = 2 \rightarrow \alpha + 2\alpha - 2 = 2 \rightarrow 3\alpha = 4 \rightarrow \alpha = \frac{4}{3} \rightarrow \beta = 2(\frac{4}{3}) - 2 = \frac{2}{3}$$

$$P = \frac{c}{a} = \frac{m-1}{3} = 0 \rightarrow m-1 = 0 \rightarrow \boxed{m = 1}$$

$$x^2 - 4x = 0 \rightarrow \Delta > 0 \checkmark$$

$$\begin{cases} P=1 \\ \Delta > 0 \end{cases} \rightarrow \frac{c}{a} = 1 \rightarrow \frac{m^2 - 2}{-m} = 1 \rightarrow m^2 - 2 + m = 0 \rightarrow (m+2)(m-1) = 0$$

$$m = -2 \quad m = 1$$

$$\text{وقتی } m = 1 \rightarrow -x^2 + 2x - 1 \rightarrow \Delta > 0 \checkmark$$

$$\text{وقتی } m = -2 \rightarrow 2x^2 + 2x + 2 \rightarrow \Delta < 0$$

$$\alpha \beta^r = \varepsilon \rightarrow \alpha = \frac{\varepsilon}{\beta^r} \Rightarrow p = \frac{c}{a} = r \Rightarrow \beta \times \frac{\varepsilon}{\beta^r} = r \rightarrow \beta = \frac{\varepsilon}{r}$$

$$\alpha \beta^r = \varepsilon \rightarrow \alpha \times \frac{14}{9} = \varepsilon \rightarrow \alpha = \frac{\varepsilon}{\frac{14}{9}} = \frac{9}{\varepsilon}$$

$$2x^r - \frac{r \cdot 14}{1r} + r = \Delta y \cdot \checkmark$$

$$\alpha + \beta = \frac{-b}{a} = m \rightarrow m = \frac{9}{\varepsilon} + \frac{\varepsilon}{r} = \frac{r \cdot 9 + 14}{1r} = \frac{r \cdot 9 + 14}{1r} = m$$

1, 20

$$\omega_{\alpha} = \alpha, \beta$$

$$S = \frac{-b}{a} = \alpha + \beta \Rightarrow r = \alpha + r\alpha \rightarrow \alpha = 1, \beta = r$$

$$p = \frac{c}{a} = m = \alpha \beta \rightarrow m = 1 \times r = r$$

$$2x^r - r \cdot 2 + r = \Delta y \cdot \checkmark$$

1, 20

$$\alpha^r + \frac{1}{\alpha^r}$$

$$\alpha^r - v\alpha + r = 0$$

$$\alpha^r + r = v\alpha$$

$$\left(\alpha\right)^r + \left(\frac{r}{\alpha}\right)^r \Rightarrow \left(\alpha + \frac{r}{\alpha}\right) \left(\alpha^r + \frac{\varepsilon}{\alpha^r} - r\right) \Rightarrow \alpha + \frac{r}{\alpha} = \frac{\alpha^r + r}{\alpha} = \frac{v\alpha}{\alpha} = v$$

$$\alpha^r + \frac{r}{\alpha^r} = \frac{\alpha^r + \varepsilon}{\alpha^r} = \frac{(r+r)^r - \varepsilon \alpha^r}{\alpha^r} \Rightarrow \frac{(\alpha^r + r)^r}{\alpha^r} - \frac{\varepsilon \alpha^r}{\alpha^r} = \varepsilon 9 - \varepsilon = \varepsilon 8$$

$$\left(\alpha + \frac{r}{\alpha}\right) \left(\alpha^r + \frac{\varepsilon}{\alpha^r} - r\right) = v \times (\varepsilon 8 - r) = v \times \varepsilon r = r \cdot 0$$

5, 1

$$x_3 = \frac{-b}{r\alpha} = \frac{-\varepsilon 0}{-r} = \frac{\varepsilon}{r}$$

$$-10t^r + 0t = 0$$

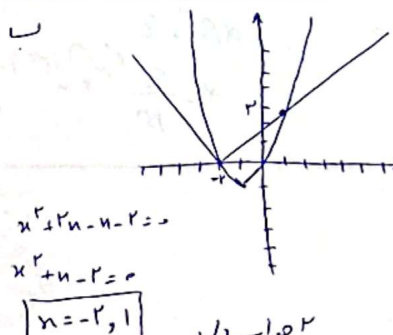
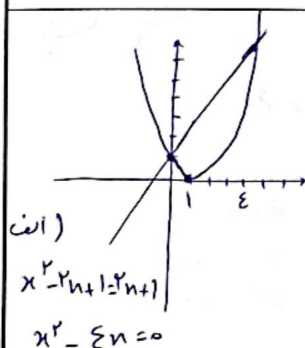
$$t(-10t + 0) = 0$$

$$t = 0, t = 0.5$$

$$y \Rightarrow -10 \left(\frac{r \cdot 0}{\varepsilon}\right) + 0 \cdot \left(\frac{0}{r}\right) = 9r, 0$$

max. 9r

5, 9



$$x^r + r_{n-1} = r_{n-1}$$

$$x^r + n - r = 0$$

$$n = -r, 1$$

5, 1

$$x(n - \varepsilon) = 0$$

$$n = 0, \varepsilon$$