

$$\text{جواب 1) } \xrightarrow{\text{CXY}} x^2 - \omega x - y^2 = 0 \quad (x-9)(x+9) = 0 \quad \left\{ \begin{array}{l} \frac{9}{y} = \frac{y}{x} \\ -\frac{9}{y} = -\frac{y}{x} \end{array} \right. \quad (1 \text{ جزء})$$

$$\text{---}) \xrightarrow{cx^r} x^r - \lambda x^{-q} = 0 \quad (x^{-q})(x+1) = 0 \quad \left\{ \begin{array}{l} \frac{q}{r} = r \\ -\frac{1}{q} \end{array} \right.$$

2) $\xrightarrow{\text{CSE}}$ $x^2 - 5x - 12 = 0$ $\left\{ \begin{array}{l} \frac{q}{r} = \frac{n}{v} \\ -\frac{r}{r} = -\frac{1}{v} \end{array} \right.$
 $(x-4)(x+3) = 0$

$$\Rightarrow \xrightarrow{(x^T)} x^T - \omega x - r^T = 0 \quad (x \cdot \lambda)(x + r^T) = 0 \quad \left\{ \begin{array}{l} \frac{\lambda}{r} = r \\ -\frac{r}{r} \end{array} \right.$$

$$\text{الف) } (x-v)(x+v) = 0 \quad \begin{cases} x = -v \\ x = v \end{cases}$$

ii) $a + c = b \Rightarrow x = -1$
 $x = -\frac{c}{a} = -\frac{r}{r}$

ج) $\Delta = b^r - c a c = r^r - c(1)(r) = -1 < 0$
ریشه ندارد

$$d) \Delta = b^2 - 4ac = r^2 - 4(r)(-r) = 5r^2 \quad x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-r \pm \sqrt{5r}}{2}$$

$$A \times B = \{ (1,r)(1,r)(r,r)(r,r)(r,r)(r,r) \}$$

$$A \times B - B^r = \{ (1, r) (1, s) \}$$

$$B^T = B \times B = \{(x, x) (x, y) (y, x) (y, y)\}$$

الف) $m^r = m + r \rightarrow m^r - m - r = 0$
 $a + c = b$
 $\begin{cases} m = -1 \\ m = -\frac{c}{a} = r \end{cases} \rightarrow (r, 1) (r, r) \Rightarrow m = -1$
 باع بست

۱- $m^r = m + r$ $m^r - m - r = c$ $\begin{cases} m = -1 \rightarrow (-1, 2) (-1, 3) \\ m = 2 \rightarrow (2, 1) (2, 4) \end{cases} \Rightarrow$ هیچ مداری از m تابع نمی شود

$$f(x) = \{(1, a^r)(1, ra-r)(a^r, ra+r)\}$$

$$a^r = r a - r \rightarrow a^r - r a + r = 0 \quad \left\{ \begin{array}{l} a = 1 \quad x \rightarrow (1, 1) \\ a = \frac{c}{a} = r \quad \checkmark \end{array} \right. \Rightarrow a = r$$

$$x=1 \rightarrow x^v-1 = ax+b \rightarrow 0 = a+b$$

$$x = r \rightarrow ax + b = x^w \rightarrow ra + b = 1 \Rightarrow a + \frac{a+b}{r} = 1 \rightarrow a = 1, \quad b = -1 \quad a \times b = -1$$

$$x = k \rightarrow y_x - y = k - y_x$$

$$\omega k = v \rightarrow k = \frac{v}{\omega} = 1,4$$

سوال ۸) الف) $y^3 - 4y = x^2 - 4x + 3 \xrightarrow{\text{نقال تنص}} x=1 \quad y(y-\sqrt{4})(y+\sqrt{4}) = 0 \quad \begin{cases} y=0 \\ y=\sqrt{4} \\ y=-\sqrt{4} \end{cases} \quad \text{تابع نیست } X$

ب) $\text{نقال تنص} \rightarrow x=0 \quad \begin{cases} y=+3 \\ y=-3 \end{cases} \quad \text{تابع نیست } X$

ج) $\text{نقال تنص} \rightarrow x=\pi \quad |y|=\sqrt{2} \rightarrow \begin{cases} y=\sqrt{2} \\ y=-\sqrt{2} \end{cases} \quad \text{تابع نیست } X$

د) $y^2 + (x+1)^2 = 0 \xrightarrow{\text{نقال تنص}} \begin{cases} y=0 \\ x=-1 \end{cases} \quad \text{تابع است } \checkmark$
هر ۲ ناشی

سوال ۹) الف) $\begin{cases} \sqrt[3]{y_1} + x_1^2 = 2x_1 - 2 \\ \sqrt[3]{y_2} + x_2^2 = 2x_2 - 2 \end{cases} \xrightarrow{x_1=x_2} \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2 \quad \text{تابع است } \checkmark$

ب) $\begin{cases} y_1^3 + 2y_1 = 2x_1 \\ y_2^3 + 2y_2 = 2x_2 \end{cases} \xrightarrow{x_1=x_2} y_1^3 + 2y_1 = y_2^3 + 2y_2 \rightarrow y_1^3 - y_2^3 + 2y_1 - 2y_2 = 0$
 $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + 2(y_1 - y_2) = 0$

$\checkmark \text{ تابع است } \textcircled{1} \boxed{y_1 = y_2} \quad \underbrace{(y_1^2 + y_1 y_2 + y_2^2 + 2)}_{\textcircled{2}} = 0 \quad \textcircled{2} \Delta = y_2^2 - 4(1)(y_2^2 + 2) = -3y_2^2 - 8 < 0 \quad \text{ریشه ندارد}$

سوال ۱۰) الف) $\text{نقال تنص} \rightarrow x=0 \quad 0 = y \times \cancel{0} \rightarrow \text{از } x=0 \text{ می گذاریم} \quad \text{تابع نیست } X$
حالت برای y داریم

ب) $a + \frac{1}{a} \geq 2 \quad \begin{cases} \rightarrow \frac{x}{y} = \frac{y}{x} = 1 \rightarrow x=y \quad \text{تابع است } \checkmark \\ a = \frac{1}{a} = 1 \rightarrow a + \frac{1}{a} = 2 \end{cases}$