

(1)

الف)  $x + 2y = -6 \rightarrow x + 2y = -6$

$3x - y = 9 \xrightarrow{\times 2} 6x - 2y = 18$

$6x - 2y = 18$   
 $6x + 4y = -12$   
 $\rightarrow 6y = 30 \rightarrow y = 5$

$\frac{x}{y} = \frac{-2}{1}$

ب)  $\frac{1}{x} - \frac{1}{y} = -1 \rightarrow \frac{y-x}{xy} = -1 \xrightarrow{\times xy} y - x = -xy$

$\frac{a}{x} - \frac{v}{y} = -3 \rightarrow \frac{ay - vx}{xy} = -3$

$\Rightarrow ay - vx = -3xy \Rightarrow ay = vx - 3xy \Rightarrow y = \frac{vx - 3xy}{a}$

$\Rightarrow \frac{1}{x} - \frac{1}{y} = -1 \Rightarrow \frac{1}{x} - \frac{1}{\frac{vx - 3xy}{a}} = -1 \Rightarrow \frac{a - vx + 3xy}{x(vx - 3xy)} = -1$

$\Rightarrow vx - 3xy = -a + vx - 3xy \Rightarrow a = 0$

$f(a) + 2f(r) = 3f(1) \quad / \quad a+1 = -2 \rightarrow a = -3$  (2)

$2a + 2b = -9$

$-9 + 2b = -9 \rightarrow 2b = 0 \rightarrow |b = 0|$

$m^2 - 3m = -2 \rightarrow m^2 - 3m + 2 = 0 \rightarrow 1$   
 $(m-1)(m-2)$  (3)

$\rightarrow m=1: \begin{cases} m^2+2 = 3 \rightarrow 5 \neq 4 \checkmark \quad (\checkmark) \\ m+1 = 2 \rightarrow 2 \neq 4 \times \quad (\times) \end{cases} \quad (\times)$   
 $\rightarrow m=2: \begin{cases} m^2+2 = 6 \checkmark \quad (\checkmark) \\ m+1 = 3 \rightarrow 3 \neq 4 \times \quad (\times) \end{cases} \quad (\times)$

m جواب ندارد

روز ایمنی حمل و نقل

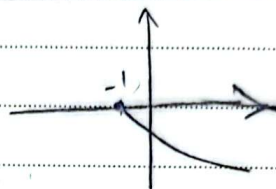
ب)  $\sqrt{-x+1}$

الف)  $x = -1$

د)  $\sqrt{-x+1}$

ب)  $x = -1$

الف)  $y = -\sqrt{x+1}$



د)  $\sqrt{-x+1}$

ب)  $x = \frac{y}{\sqrt{1-y^2}}$       $\frac{1-y_1}{\sqrt{1-y_1^2}} = \frac{y_2}{1-\sqrt{1-y_2^2}}$       $\rightarrow y_1 \sqrt{1-y_2^2} = y_2 \sqrt{1-y_1^2}$

همگام  $\rightarrow y_1^2 - y_1^2 y_2^2 = y_2^2 - y_2^2 y_1^2 \rightarrow y_1^2 = y_2^2$      "مربع کردن"

الف)  $|y| = x \rightarrow x = 1 \Rightarrow y \rightarrow \begin{matrix} 1 \\ -1 \end{matrix}$       $\sin x$      ۹

ب)  $(y+1)^x + x(x^2+1) - 1 = 0$

د)  $y = x$       $\frac{1}{y-x}$

$f(x) = \frac{(x+2)^x + 1}{(x+2)^x + 3}$      ۱۴

$\rightarrow f(\sqrt{x}-2) = \frac{x+1}{x+3} = \frac{x}{4} = \left[ \frac{x}{4} \right]$      ۱۵

$$y - 12x + a = 0 \quad (8)$$

$$-4 + 12 + a = 0 \rightarrow a = 1$$

$$f(x) = x^{10} + a + b$$

$$-4 = -1 - 1 + b \Rightarrow b = -2$$

$$12x - 1 = x^{10} + x - 2 \rightarrow x^{10} - 12x + 1 = 0 \rightarrow \text{پد جواب}$$

$$\begin{array}{r|l} x^{10} - 12x - 1 & x+1 \\ \hline -x^{10} - x^9 & \\ \hline -x^9 - 12x - 1 & \\ +x^9 + x^8 & \\ \hline -x^8 - 12x - 1 & \\ +x^8 + x^7 & \\ \hline -x^7 - 12x - 1 & \\ +x^7 + x^6 & \\ \hline -x^6 - 12x - 1 & \\ +x^6 + x^5 & \\ \hline -x^5 - 12x - 1 & \\ +x^5 + x^4 & \\ \hline -x^4 - 12x - 1 & \\ +x^4 + x^3 & \\ \hline -x^3 - 12x - 1 & \\ +x^3 + x^2 & \\ \hline -x^2 - 12x - 1 & \\ +x^2 + x & \\ \hline -x - 12x - 1 & \\ +x + 1 & \\ \hline 0 & \end{array} \rightarrow \frac{b}{a} = 1$$

$$a + b = 12a \rightarrow a = b \quad (9)$$

$$a - 12b + 1 = 12a \rightarrow 12a = 1 \rightarrow a = \frac{1}{12} = b$$

$$f(x) = 0 = \frac{c+1}{12} \rightarrow c = -1 \quad (10)$$

$$f(x) = 1 \Rightarrow 1 - a = b + 12 \Rightarrow a + b = 1$$

$$f(x) = 2 \Rightarrow \frac{14 - 12a}{12b + 12} = 2 \rightarrow 14 - 12a = 4b + 12$$

$$\Rightarrow 1 - a = 2b + 12 \Rightarrow a = -11 - 2b$$

$$\Rightarrow 1 = (-11 - 2b) + b + 12 \Rightarrow b = 2, a = -11$$

$$a + b + c = -11 + 2 - 1 = 0$$