

(الف)
$$\begin{cases} a = 3x - y \Rightarrow y = 3x - a \\ -x = x + 2y \Rightarrow -x = x + 2(3x - a) \Rightarrow -x = x + 6x - 2a \Rightarrow -x = 7x - 2a \Rightarrow -8x = -2a \Rightarrow 4x = a \Rightarrow x = \frac{a}{4} \end{cases}$$

$$\frac{1}{x} - \frac{1}{y} = -1 \Rightarrow \frac{y-x}{xy} = -1 \Rightarrow y-x = -xy$$

$$\frac{a}{x} - \frac{b}{y} = -2 \Rightarrow \frac{ay - bx}{xy} = -2 \Rightarrow ay - bx = -2xy$$

$$\begin{cases} ay - bx = -2xy \\ 4x = a \end{cases} \Rightarrow \begin{cases} ay - bx = -2xy \\ y = \frac{a}{4x} \end{cases} \Rightarrow \begin{cases} ay - bx = -2xy \\ y = \frac{a}{4x} \end{cases}$$

$$f(a) + 2f(r) = 2f(1) \Rightarrow ra + rb = 2a + 2r \Rightarrow b = \frac{a+r}{r}$$

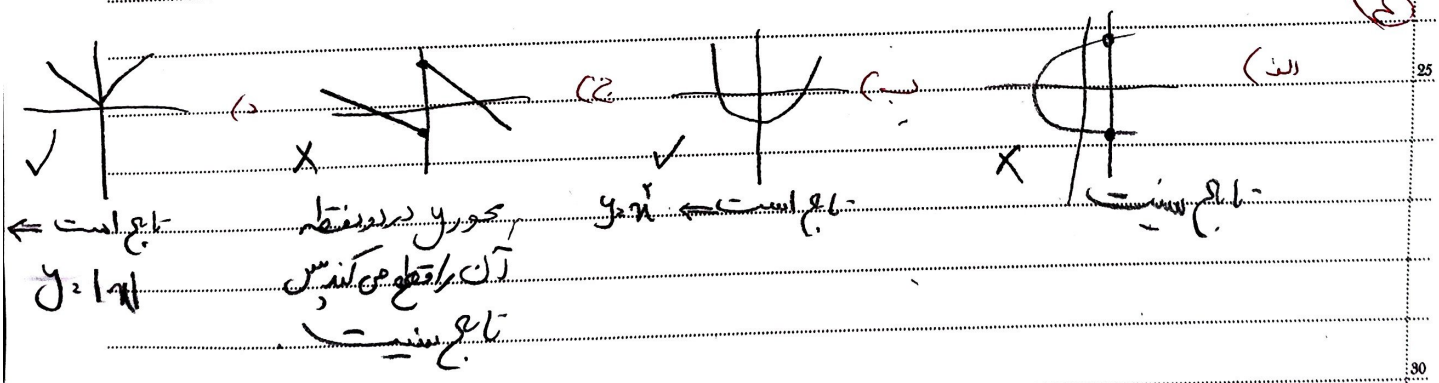
$$a + 1 = 2 \Rightarrow a = 1 \Rightarrow b = 0$$

محلها را بیابید

$$m^2 - 2m + 2 = 0 \Rightarrow (m-1)(m-2) = 0 \Rightarrow \begin{cases} m=1 \\ m=2 \end{cases}$$

$$m=1 \rightarrow f\{(-1, -2), (2, 4), (4, 8)\} \text{ تابع نسبت } X$$

$$m=2 \rightarrow f\{(-1, -2), (2, 4), (4, 9)\} \text{ تابع نسبت } X$$



ا) $y_1 = \sqrt{x+1} \xrightarrow{\text{تعريف}} y_1 = \sqrt{x+1} \Rightarrow y_1^2 = y_2 \Rightarrow y_2 = y_1^2$ ✓ معادلات

ب) $x = \frac{y}{\sqrt{1-y^2}} \Rightarrow x_1 = \frac{y_1}{\sqrt{1-y_1^2}} \quad x_2 = \frac{y_2}{\sqrt{1-y_2^2}} \xrightarrow{x_1 = x_2} \frac{y_1}{\sqrt{1-y_1^2}} = \frac{y_2}{\sqrt{1-y_2^2}}$

$\frac{y_1^2}{1-y_1^2} = \frac{y_2^2}{1-y_2^2} \Rightarrow y_1^2 - y_1^2 y_2^2 = y_2^2 - y_1^2 y_2^2 \Rightarrow y_1^2 = y_2^2 \Rightarrow y_1 = \pm y_2$ ✓ معادلات

ج) $|y| = x \Rightarrow |y_1| = x \Rightarrow |y_2| = x \Rightarrow |y_1| = |y_2| \Rightarrow y_1 = \pm y_2$ ✓ معادلات

د) $y^2 + 2y^2 + 3y^2 = x^2 + x \Rightarrow y_1^2 + 2y_1^2 + 3y_1^2 = x^2 + x \Rightarrow y_2^2 + 2y_2^2 + 3y_2^2 = x^2 + x \Rightarrow y_1 = y_2$ ✓ معادلات

$f(x) = \frac{x^2 + \epsilon x + \omega}{x^2 + \epsilon x + \nu} \rightarrow \frac{x^2 + \epsilon x + \omega + 1 - 1}{x^2 + \epsilon x + \nu} \rightarrow 1 - \frac{1}{x^2 + \epsilon x + \nu}$

$x^2 + \epsilon x + \nu \Rightarrow (\sqrt{\epsilon} - 1)^2 + \epsilon(\sqrt{\epsilon} - 1) + \nu \Rightarrow 3 + \epsilon - \epsilon\sqrt{\epsilon} + \epsilon\sqrt{\epsilon} - 1 + \nu = 4$

$1 - \frac{1}{x^2 + \epsilon x + \nu} \rightarrow 1 - \frac{1}{4} \Rightarrow 1 - \frac{1}{4} = \frac{3}{4}$

$y = 3x - a \Rightarrow -\epsilon_2 - 3 - a \Rightarrow a_2 = -1 \Rightarrow y_2 = 3x - 1$

$f(x) = x^2 + x + b \Rightarrow -\epsilon_2 - 1 - 1 + b \Rightarrow b_2 = 1$

$x^2 + x - 1 = 3x - 1 \Rightarrow x^2 - 2x = 0 \Rightarrow x(x-2) = 0$

$\frac{x^2 - 2x - 1}{x^2 + x} \cdot \frac{x+1}{x^2 - x + 1} \Rightarrow \frac{x^2 - 2x - 1}{x^2 - x + 1} \Rightarrow \frac{-x^2 - 2x - 1}{-x^2 + x} \Rightarrow \frac{-x - 1}{-x + 1} \Rightarrow \frac{x+1}{x-1}$

$\frac{x+1}{x-1} \rightarrow \frac{1}{2} \left[\frac{x+1}{x-1} + \frac{x-1}{x-1} \right] \rightarrow \frac{1}{2} \left[\frac{x+1+x-1}{x-1} \right] \rightarrow \frac{1}{2} \left[\frac{2x}{x-1} \right] \rightarrow \frac{x}{x-1}$

زهرا سادات حسینی

Subject:

Date:

$$a + b = 2a \rightarrow a = b$$

(9)

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

$$f(1) = \frac{c - a + c + 1}{b + 1} \Rightarrow \frac{c - a + 1}{b + 1} = 1 \Rightarrow$$

(10)

$$c - a + 1 = b + 1 \Rightarrow -1 + 1 - 2b + a = 0 \Rightarrow a - 2b = 0 \Rightarrow a = 2b$$

$$f(0) = \frac{c + 1}{1} = 0 \Rightarrow c + 1 = 0 \Rightarrow c = -1$$

$$a + b + c = 1 + (-1) = 0$$