

الف) $y^3 - x = 2x^2 \rightarrow y^3 = 2x^2 - x$

$\rightarrow y = \sqrt[3]{2x^2 - x}$
چون هر یک از مقادیر حقیقی در این معادله است

ب) $\sqrt{x-4} + |y-2| = 0 \rightarrow \sqrt{x-4} = 0 \Rightarrow x=4 / |y-2|=0 \Rightarrow y=2$

این معادله تنها یک جواب است و این است.

ب) $|y| + x^2 = x + 3 \rightarrow |y| = x + 3 - x^2$

if $x=0 \rightarrow |y|=3 \rightarrow y=\pm 3$

این دو جواب را در این معادله است

ب) $x = \cos y$

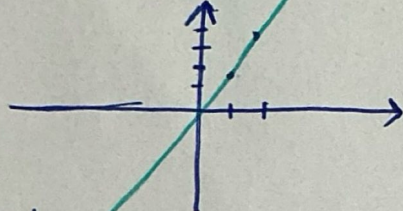
if $x=1 \rightarrow \cos y = 1 \rightarrow y = 0 (0) / y = 2\pi (360)$

این دو جواب را در این معادله است

$y = ax + b \Rightarrow y = 2x + b$

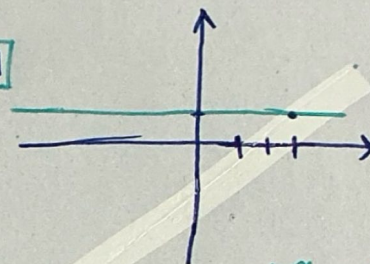
$2 = 2x + b \Rightarrow b = 0 \rightarrow y = 2x$

جدول: $\begin{matrix} 1 & 0 \\ 1 & 1 \\ 1 & 2 \end{matrix}$



$y = k$

$\rightarrow y = 1$



این دو جواب را در این معادله است

$y = x^2 + ax + b$

$2 = 1^2 + (1)a + b$

$\rightarrow 2 = 1 + a + b$

$\Rightarrow b = 1$

$a + 2b = -2 + 2(1) = 0$

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

$\Rightarrow a = -2$

$b = 1$

ب) $y = x$

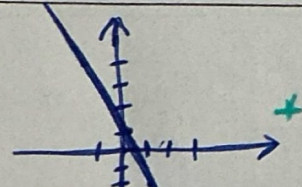
$\Rightarrow ax + b = x$

$\Rightarrow a = 1, b = 0$

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

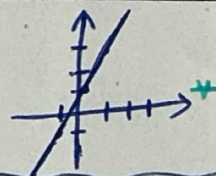
$y = -2x + 1$

$\begin{matrix} 1 & 0 \\ 1 & 1 \\ 1 & 2 \end{matrix}$



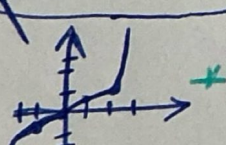
ب) $y = 2x + 1$

$\begin{matrix} 1 & 0 \\ 1 & 1 \\ 1 & 2 \end{matrix}$



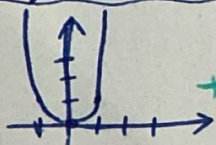
$y = x^2$

$\begin{matrix} 1 & 0 \\ 1 & 1 \\ 1 & 2 \end{matrix}$

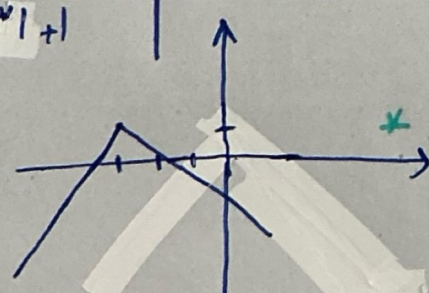


ب) $y = x^2$

$\begin{matrix} 1 & 0 \\ 1 & 1 \\ 1 & 2 \end{matrix}$

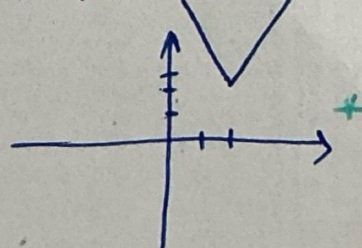


$y = -(x+3) + 1$



ب) $y = |x-2| + 3$

$y = |x-2| + 3$



$$y = \frac{x+f}{x^2 - vx + 19} \quad \Delta = b^2 - 4ac \quad \Delta < 0 \quad (-)$$

$$= 49 - 4f = -5 \rightarrow \text{ان عدد دلتا سالب}$$

$$\Rightarrow D_f = \mathbb{R}$$

$$y = \frac{x+f}{x^2 - fx} \quad (الف)$$

$$x^2 - fx \neq 0 \Rightarrow x(x-f) \neq 0$$

$$\rightarrow x \neq 0, f \quad D_f = \mathbb{R} - \{0, f\}$$

$$y = \frac{x+f}{x^2 - vx} \Rightarrow x^2(x^2 - f) = x^2(x+v)(x-v) \neq 0$$

$$\Rightarrow x \neq 0, v, -v \Rightarrow D_f = \mathbb{R} - \{0, v, -v\}$$

$$y = \frac{x+f}{x^2 + x + f} \Rightarrow \Delta = b^2 - 4ac$$

$$= 1 - 4f = 15 \quad \Delta > 0$$

$$D_f = \mathbb{R}$$

$$1) y = \sqrt{4-x} + \sqrt{x-2} \Rightarrow 4-x \geq 0 \rightarrow x \leq 4$$

$$x-2 \geq 0 \rightarrow x \geq 2$$

$$\rightarrow 2 \leq x \leq 4 \Rightarrow D_f = [2, 4]$$

$$\Rightarrow y = \frac{x^2 + 1}{x^2 + 1} \Rightarrow x^2 + 1 \neq 0$$

$$\Rightarrow x^2 \geq 0 \Rightarrow D_f = \mathbb{R}$$

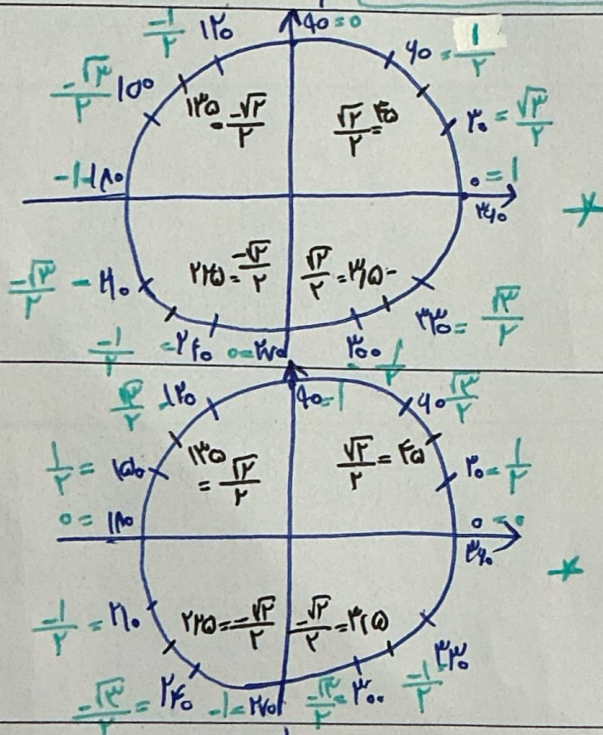
$$2) y = \frac{vx + v}{x^2 + x + 2} \quad vx + v \neq 0 \Rightarrow \begin{matrix} + \\ - \\ \odot \end{matrix} \checkmark$$

$$\rightarrow D_f = \mathbb{R} - \{0\}$$

$$3) y = \frac{\sqrt{x-2}}{x-f} \Rightarrow x-2 \geq 0 \rightarrow x \geq 2$$

$$x-f \neq 0 \rightarrow x \neq f$$

$$D_f = [2, f) \cup (f, +\infty)$$



$$\cos \frac{11\pi}{9} = \frac{\sqrt{3}}{2}$$

$$\hookrightarrow \text{جيب} = -\frac{\sqrt{3}}{2}$$

$$\sin \theta = -\frac{\sqrt{3}}{2} \Rightarrow$$

$$\theta = \frac{4\pi}{3}, \frac{5\pi}{3} \quad (120^\circ) \quad (300^\circ)$$

$$\cos \frac{2\pi}{3} = -\frac{1}{2}$$

$$\hookrightarrow \text{جيب} = \frac{1}{2}$$

$$\sin \theta = \frac{1}{2} \Rightarrow$$

$$\theta = \frac{\pi}{6}, \frac{5\pi}{6} \quad (30^\circ) \quad (150^\circ)$$