

با استفاده از تعریف  $\rightarrow y^3 - x = 2x^2$  (الف)

$$\left. \begin{aligned} y_1^3 - x_1 &= 2x_1^2 \\ y_2^3 - x_2 &= 2x_2^2 \end{aligned} \right\} \xrightarrow{x_1 = x_2} y_1^3 - x_1 = y_2^3 - x_2 \Rightarrow y_1^3 = y_2^3 \Rightarrow y_1 = y_2 \text{ تابع مستقیم}$$

ب)  $|y| + x^2 = x + 3 \xrightarrow{x=1} |y| + 1 = 4 \Rightarrow |y| = 3 \Rightarrow y = \pm 3$   
 مثال نقص تابع نیست

ج)  $\sqrt{x-4} + |y-2| = 0$

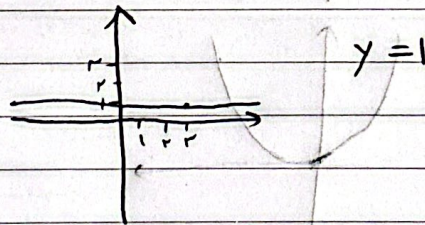
خط قائم آن را با بر تقاطع می کنند  
و تابع مستقیم

نکته  $\sqrt{x-4} > 0, |y-2| > 0 \Rightarrow \sqrt{x-4} = 0, |y-2| = 0 \Rightarrow x=4, y=2$

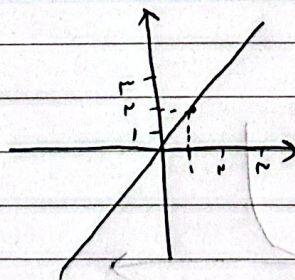
د)  $x = \cos y \Rightarrow x = 0 \Rightarrow y = 2k\pi \pm \frac{\pi}{2}$

مثال نقص

تابع نیست



۳- الف)



$y = 2x$

ب)

Subject:

$$y = ax + b \quad a = 1 \quad a + b = 1$$

(الف - م)

$$b = 0$$

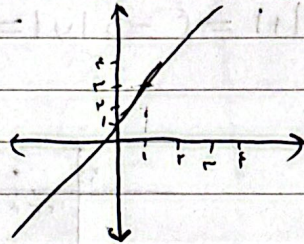
$$\text{الخط : } y = x$$

$$\min: \left| \begin{matrix} 1 \\ 1 \end{matrix} \right| = \left| \begin{matrix} -\frac{b}{a} \\ -\frac{a}{a} \end{matrix} \right| \Rightarrow \left| \frac{a}{1} \right| \Rightarrow \frac{a}{1} = 1 \Rightarrow a = 1$$

(ب)

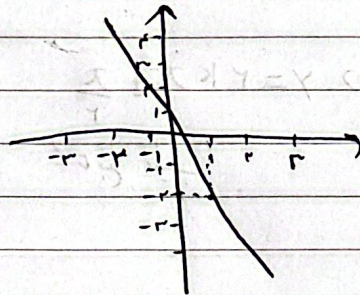
$$a = 1 \Rightarrow y = 1^x + (-1) + b = 1 \Rightarrow b = 0$$

$$y = 2x + 1$$



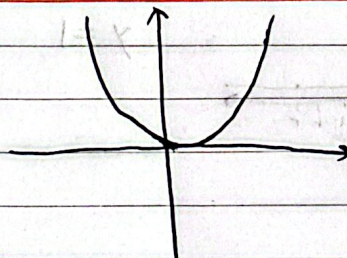
(الف - م)

$$y = -2x + 1$$



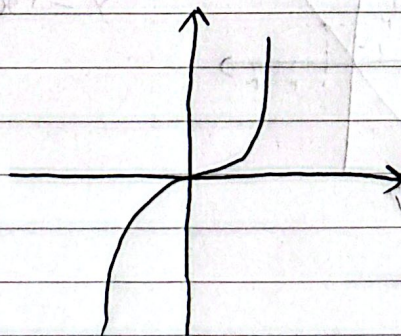
(ب)

$$y = x^2$$



(ج)

$$y = x^3$$

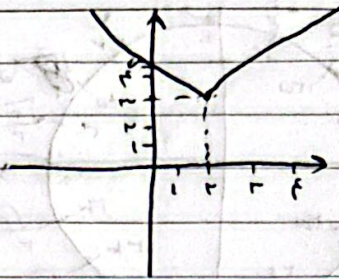


(د)

IDEA

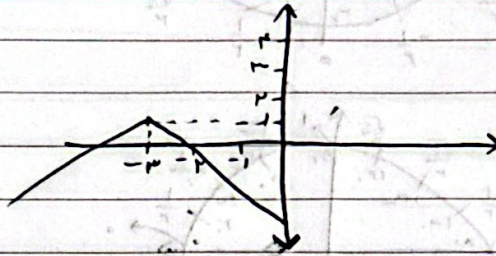
Subject:

$$y = |x-2| + 3$$



1. ا) (1)

$$y = -|x+2| + 1$$



ب.

$$y = \frac{x+2}{x^2-2x} = \frac{x+2}{x(x-2)} \quad D_f = \mathbb{R} - \{0, 2\}$$

2. ا) (2)

$$y = \frac{x+2}{x^2-2x+1} \rightarrow \Delta = b^2 - 4ac = 4 - 4 = 0 \Rightarrow \Delta \leq 0 \Rightarrow D_f = \mathbb{R}$$

ب.

$$y = \frac{x+2}{x^2+x+1} \rightarrow \Delta = b^2 - 4ac = 1 - 4 = -3 < 0 \Rightarrow D_f = \mathbb{R}$$

ج.

$$y = \frac{x+2}{x^2-2x^2} = \frac{x+2}{x^2(x-2)} \Rightarrow D_f = \mathbb{R} - \{0, 2, -2\}$$

د.

$$x = \sqrt{4-x} + \sqrt{x-2} \Rightarrow D_f = [2, 4]$$

هـ) (3)

$$y = \frac{x+1}{x^2+1} \rightarrow x^2+1 \neq 0 \Rightarrow x^2 \neq -1 \Rightarrow D_f = \mathbb{R}$$

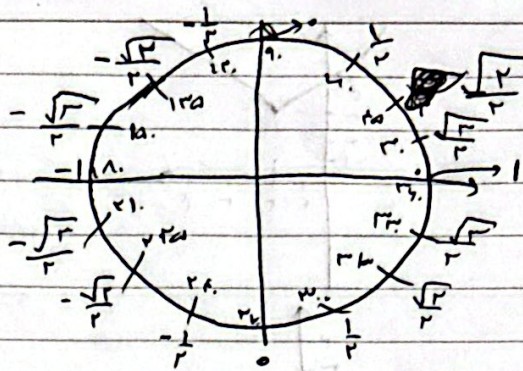
ب.

$$y = \frac{\sqrt{x-2}}{x-2} \rightarrow \begin{matrix} 2 \leq x \\ x-2 \neq 0 \Rightarrow x \neq 2 \end{matrix} \Rightarrow D_f = [2, +\infty) - \{2\} = [2, 2) \cup (2, +\infty)$$

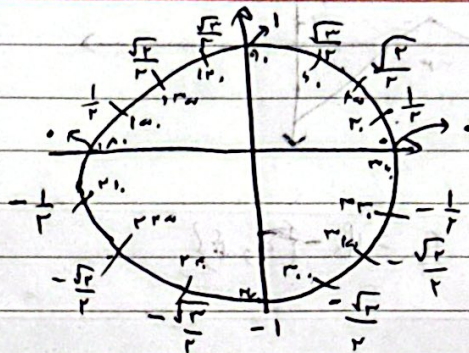
ج.

$$y = \frac{2x+2}{|x|+x^2} \rightarrow |x|+x^2 \neq 0 \Rightarrow x \neq 0 \Rightarrow D_f = \mathbb{R} - \{0\}$$

د.



← cos α



← sin α

$$\cos \frac{5\pi}{6} = -\frac{1}{2} \Rightarrow \frac{1}{2} \rightarrow \sin \alpha = \frac{1}{2} \Rightarrow \alpha = \left\{ 2k\pi + \frac{\pi}{6}, 2k\pi + \pi - \frac{\pi}{6} \right\} \quad (1) \text{ انز}$$

$$\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2} \Rightarrow \sin \alpha = -\frac{\sqrt{3}}{2} \Rightarrow \alpha = \left\{ 2k\pi + \frac{4\pi}{3}, 2k\pi + \frac{5\pi}{3} \right\} \quad (2)$$