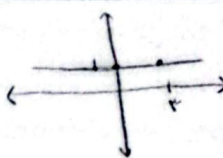


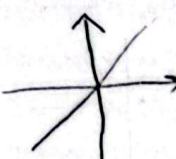
تابع است $y^3 = x = 2x^2 \Rightarrow y^3 = 2x^2 + x \quad x=1 \Rightarrow y^3 = 3 \quad y = \sqrt[3]{3}$

تابع نیست $|y| + x^2 = x + 3 \Rightarrow |y| = x + 3 - x^2$
 $x=1 \rightarrow |y| = 3 \rightarrow y = \pm 3$

زمانی که عبارت نامنفی منفی شود
 که در دو صفر باشند $\Rightarrow$

تابع نیست $x = \cos y \quad x=1 \Rightarrow \cos 0 = 1 \quad \cos 2\pi = 1 \Rightarrow y = 0, 2\pi, \dots$

(الف)  $f(x) = 3$

(ب) 

$a=2 \Rightarrow y = 2x + b$
 $\Rightarrow 2 = 2(1) + b \Rightarrow b = 0$
 $f(x) = 2x$

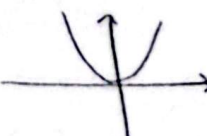
(الف) $x=y \Rightarrow f(x)=x \quad y=ax+b \quad x=ax+b \quad a=1 \quad b=0$

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

(ب) $y = x^2 + ax + b$
 $x = -\frac{b}{2a} \Rightarrow 2 = -\frac{a}{4} \Rightarrow a = -8$
 $a+2b = -8+2b = 7 \Rightarrow 2b = 15 \Rightarrow b = 7.5$

(الف) $y = 2x + 1$ 

(ب) $y = -3x + 1$ 

(ج) $y = x^2$ 

$y = x^n$ 

(الف) $|x-2| + 3$ 

عرض از مبدأ فرجه شود

(ب) $-|x+3| + 1$ 



$y = |x|$

$$ج) \frac{x+4}{x^2-4x} \Rightarrow x^2-4x = x(x-4) \quad x=0 \quad x=4 \quad D_f = \mathbb{R} - \{0, 4\}$$

$$ب) \frac{x+4}{x^2 \vee x+4} \Rightarrow \text{مخرج مشترك} \Rightarrow D_f = \mathbb{R}$$

$$ع) \frac{x+4}{x^2-x+4} \Rightarrow \text{مخرج مشترك} \Rightarrow D_f = \mathbb{R}$$

$$د) \frac{x+4}{x^2-4x^2} \Rightarrow x^2-4x^2 = x^2(x-4) \Rightarrow x^2(x^2-4) = 0 \Rightarrow x^2(x-2)(x+2) = 0$$

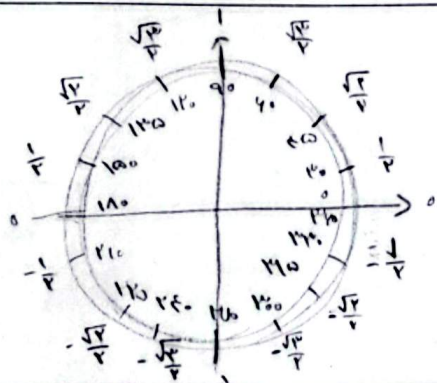
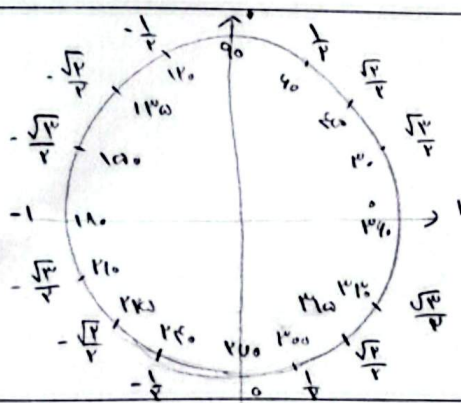
$$D_f = \mathbb{R} - \{-2, 0, 2\}$$

$$ا) 4-x \geq 0 \quad x \leq 4 \quad x-2 \geq 0 \quad x \geq 2 \quad D_f = [2, 4]$$

$$ب) x^2+1 \neq 0 \quad x^2 \neq -1 \quad D_f = \mathbb{R}$$

$$ج) x-2 \geq 0 \quad x \geq 2 \quad x \neq 4 \quad D_f = [2, 4) \cup (4, +\infty)$$

$$د) |x| + x^2 \geq 0 \quad |x| \geq 0, x^2 \geq 0 \Rightarrow x=0 \quad D = \mathbb{R} - \{0\}$$



$$\cos \frac{\pi}{4} = \frac{1}{2} \Rightarrow \frac{1}{2} \quad \sin \alpha = \frac{1}{2} \Rightarrow \alpha = \frac{\pi}{4}, \frac{3\pi}{4} \quad (ج)$$

$$\cos \frac{11\pi}{4} = \frac{\sqrt{3}}{2} \Rightarrow \frac{\sqrt{3}}{2} \quad \sin \alpha = -\frac{\sqrt{3}}{2} \Rightarrow \alpha = \frac{5\pi}{4}, \frac{7\pi}{4} \quad (د)$$

۱- الف، این رابطه تابع است و نباید مثال فصل بنویسنا

تعریف ریاضی:

$$\begin{aligned} y_1^3 &= 2x_1^2 + x_1 \\ y_2^3 &= 2x_2^2 + x_2 \end{aligned} \xrightarrow{x_1 = x_2 = x} \begin{aligned} y_1^3 &= 2x^2 + x \\ y_2^3 &= 2x^2 + x \end{aligned} \longrightarrow y_1^3 = y_2^3 \Rightarrow y_1 = y_2$$
