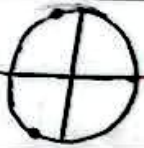


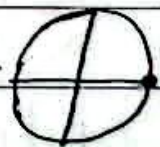
تالیف شماره ۵

گروه دوم پنجشنبه (ختر)

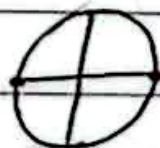
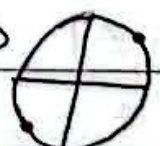
نگارفتی

الف) $2\cos x + 1 \neq 0 \Rightarrow \cos x \neq -\frac{1}{2} \Rightarrow \frac{2\pi}{3}, \frac{4\pi}{3}$  (-۱)

$$Df = \mathbb{R} - \left\{ \frac{2k\pi}{3} + \frac{2\pi}{3}, \frac{2k\pi}{3} + \frac{4\pi}{3} \right\}$$

ب) $\cos x - 1 \neq 0 \Rightarrow \cos x \neq 1 \Rightarrow 2\pi \Rightarrow Df = \mathbb{R} - \{2k\pi\}$ 

الف) $\frac{\sin x}{\cos x} \neq -1 \Rightarrow \cos x \neq 0 \Rightarrow k\pi + \frac{\pi}{2}$  (-۲)
 $\Rightarrow k\pi + \frac{\pi}{2}$
 $Df = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right\}$ 

ب) $\frac{\cos x}{\sin x} \neq 1 \Rightarrow \sin x \neq 0 \Rightarrow 2\pi, \pi$ 
 $\Rightarrow \frac{\pi}{4}, \frac{5\pi}{4}$ $Df = \mathbb{R} - \left\{ k\pi, k\pi + \frac{\pi}{4} \right\}$ 

الف) $-1 \leq \sin y \leq 1 \Rightarrow -1 \leq x^2 - 2 \leq 1 \Rightarrow 1 \leq x^2 \leq 3 \Rightarrow 1 \leq x \leq \sqrt{3}$ (-۳)
 $-\sqrt{3} \leq x \leq -1$

$$Df = [1, \sqrt{3}] \cup [-\sqrt{3}, -1]$$

ب) $-1 \leq \sqrt{x-3} \leq 1 \Rightarrow 2 \leq \sqrt{x} \leq 4 \Rightarrow 4 \leq x \leq 16$

$$Df = [4, 16]$$

و.

الف) $-1 \leq |x| - 3 \leq 1 \Rightarrow 2 \leq x \leq 4$
 $-4 \leq x \leq -2$ } $Df = [2, 4] \cup [-4, -2]$ (-4)

ب) $-1 \leq x^2 + 3x + 1 \leq 1 \Rightarrow x^2 + 3x + 1 \geq 0 \Rightarrow (x+2)(x+1)$
 $x^2 + 3x \geq 0 \Rightarrow x(x+3) \Rightarrow$ باید مثبت باشد
 $\begin{array}{c} -2 \quad -1 \\ + \quad - \quad + \end{array}$

$[-3, 0]$ و $(-\infty, -2] \cup [-1, +\infty) \Rightarrow$
 $\begin{array}{c} -3 \quad -2 \quad -1 \quad 0 \end{array}$

$Df = [-3, -2] \cup [-1, 0]$

الف) $x^2 - 4 > 0 \Rightarrow (x-2)(x+2) \Rightarrow$
 $\begin{array}{c} -2 \quad 2 \\ + \quad - \quad + \end{array}$ $Df = (-\infty, -2] \cup [2, +\infty)$ (-5)

ب) $2 - |x| > 0 \Rightarrow 2 > |x| \Rightarrow -2 < x < 2 \Rightarrow Df = (-2, 2)$

الف) $5 - x > 0 \Rightarrow 5 > x$ $x - 3 > 0, x - 3 \neq 1$ (-6)

$x > 3, x \neq 4 \Rightarrow 3 < x < 5, x \neq 4$

$Df = (3, 5) - \{4\}$

ب) $x^2 - 1 > 0 \Rightarrow (x-1)(x+1) > 0$
 $\begin{array}{c} -1 \quad 1 \\ + \quad - \quad + \end{array}$
 $(-\infty, -1) \cup (1, +\infty)$

$x + 3 > 0 \Rightarrow x > -3, x + 3 \neq 1 \Rightarrow x \neq -2$

$Df = (-3, -1) \cup (1, +\infty) - \{-2\}$

الف) $\frac{x^2 - 4}{x - 3} > 0 \Rightarrow \frac{(x-2)(x+2)}{x-3} > 0$
 $\begin{array}{c} 2 \quad 3 \quad \infty \\ - \quad + \quad + \end{array}$ $Df = [1, +\infty) - \{2\}$ (-7)
 که ریشی مضاعف زیاده

$$\text{ب) } \frac{n+3}{n-2} > 0 \quad \begin{array}{c} -3 \quad 2 \\ | \quad | \\ + \quad - \quad + \end{array} \quad (-\infty, -3] \cup (2, +\infty)$$

$$Df = (-\infty, -3] \cup (2, +\infty) - \{-4\}$$

$$n+3 > 0, n+3 \neq 1$$

$$\hookrightarrow n > -3 \quad \hookrightarrow n \neq -4$$

$$\text{الف) } n-2 > 0 \rightarrow n > 2 \quad 3 - \log_2^{(n-2)} \geq 0 \Rightarrow \log_2^{(n-2)} \leq 3 \quad (-1)$$

$$n-2 \leq 2^3 \Rightarrow n \leq 10 \Rightarrow 2 < n \leq 10$$

$$Df = (2, 10]$$

$$\text{ب) } n > 0 \quad \log_3^n > \frac{1}{4} \rightarrow n > \sqrt{3} \quad Df = (\sqrt{3}, +\infty)$$

$$\text{الف) } 4^n + 1 \neq 0 \Rightarrow \text{همواره برقرار} \Rightarrow Df = \mathbb{R} \quad (-9)$$

$$\text{ب) } 4^n - 1 \neq 0 \Rightarrow 4^n \neq 1 \Rightarrow n \neq 0 \Rightarrow Df = \mathbb{R} - \{0\}$$

$$\text{ج) } 4^n - 2 \neq 0 \Rightarrow 4^n \neq 2 \Rightarrow n \neq \frac{1}{2} \Rightarrow Df = \mathbb{R} - \{\frac{1}{2}\}$$

$$\text{د) } 4^n - 3 \neq 0 \Rightarrow 4^n \neq 3 \Rightarrow \log_4 3 \Rightarrow Df = \mathbb{R} - \{\log_4 3\}$$

$$\text{الف) } 4^{n+1} \in W \Rightarrow n \in \frac{W-1}{4} \Rightarrow Df = \{n \mid n = \frac{k-1}{4}, k \in W\} \quad (-10)$$

$$\text{ب) } \frac{4^{n-1}}{2^{n-1}} \in W \Rightarrow -(-\frac{1}{2}W+1) \Rightarrow \frac{1}{2}W-1$$

$$Df = \{n \mid n = \frac{1}{2}k-1, k \in W\}$$

زیادگی