

یا از ربع وقت دیگری

تکلیف

یسا قرائی

$$f(x) = \sqrt{(x-2)x^2 + ax + b} \quad [3, +\infty)$$

$x \leq 3$ $a-2 \leq 0$ $a \leq 2$

$$x+b \rightarrow 4+b \leq 0$$

$$\boxed{b \leq -4}$$

$$f(x) = \sqrt{x^2 + 2x + 2 - m^2}$$

$\Delta \leq b^2 - 4ac \rightarrow 4 - 4(1-m^2) \leq 4 - 4 + 4m^2 \leq 4m^2$
 $\Delta \leq 0 \quad m^2 - 1 \leq 0$
 $-1 \leq m \leq 1 \rightarrow 1 - (-1) = 2$

$$f(x) = \frac{\sqrt{4-x^2}}{[x] + [-x] + 1} \quad x \in \mathbb{Z}$$

$-2 \leq x \leq 2$
 $-2, -1, 0, 1, 2 \rightarrow 5$

$$a) \sqrt{x^3 + 3x^2} = x^2(x+3) \quad \frac{-3}{-1+1+1} \quad [-3, +\infty)$$

$$b) y = \frac{(x^2-1)(x^2+m^2)}{x^2-1}$$

$x \leq -1 \quad x \leq 1 \quad x \geq 0 \rightarrow x \geq 2$
 $(x+1)(x-1)x^2(x-2)$
 $(x-1)(x^2+1+x)$
 $x \leq 1$
 $D = (-\infty, -1] \cup \{0\} \cup [2, +\infty)$

$$a) \sqrt{|x-2|-3} \geq 0 \quad |x-2| \geq 3$$

$|x-2| \geq 3 \rightarrow x \geq 5$
 $|x-2| \leq -3 \rightarrow x \leq -1 \quad D = (-\infty, -1] \cup [5, +\infty)$

$$b) y = \sqrt{4-|x-2|} \geq 0 \quad |x-2| \leq 4$$

$-4 \leq x-2 \leq 4 \rightarrow -2 \leq x \leq 6$
 $D = [-2, 6]$

2

الف) $\sqrt{1-x|x|} \geq 0$
 $x|x| \leq 1$

$D = (-\infty, 1]$

- Ⓐ $\rightarrow x^2 < 1 \rightarrow -1 < x < 1$
- Ⓑ $\rightarrow \checkmark$
- Ⓒ $\rightarrow \checkmark$

ب) $\frac{1}{\sqrt{3-|x-1|-1}} \neq 0$
 $\sqrt{3-|x-1|-1} \neq 0$
 $3-|x-1|-1 \neq 0$
 $2-|x-1| \neq 0$
 $|x-1| \neq 2$

$x-1 < 1 \rightarrow x < 2$
 $|x-1| \leq 2$
 $-2 \leq x-1 \leq 2 \rightarrow -1 \leq x \leq 3$
 $D = [1, 3] - \{2, 3\}$

$x-1 \neq 2 \rightarrow x \neq 3$
 $|x-1| \neq 2 \rightarrow x \neq -1$

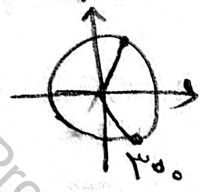
الف) $y = \frac{\sin^2 x}{\cos} \cos \neq 0$



$\mathbb{R} - \{x \mid x = \frac{\pi}{2} + k\pi\}$

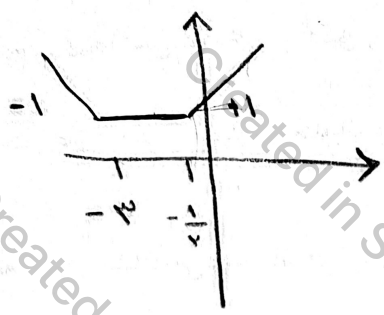
ب) $y = \frac{\cos x}{x \cos - 1}$

$x \cos - 1 \neq 0$
 $x \cos \neq 1$
 $\cos \neq \frac{1}{x}$



$\mathbb{R} - \{x \mid x = \frac{\pi}{2} + k\pi\}$

الف) $y = \frac{x+3}{|x+1|-|x+3|}$
 $|x+1| = 0 \rightarrow x = -1$
 $|x+3| = 0 \rightarrow x = -3$
 $x \neq -1$
 $x \neq -3$
 $x \neq -\frac{1}{2}$

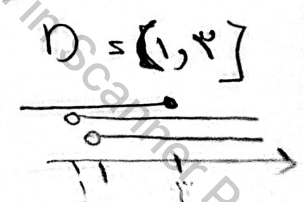


$x^2 - 2x - 1 \neq 0$
 $x^2 - 2x - 1 \neq 0$
 $D = \mathbb{R} - \{-\frac{1}{2}, 1\}$

ب) $y = \sqrt{|x+1|-|x+3|}$ $D = (-\infty, -\frac{1}{2}] \cup [1, +\infty)$

$f(x) = \sqrt{\log_{\frac{1}{2}}(\log_{\omega}(x-1))}$
 $\log_{\frac{1}{2}}(\log_{\omega}(x-1)) \geq 0$
 $\log_{\omega}(x-1) \leq 1$

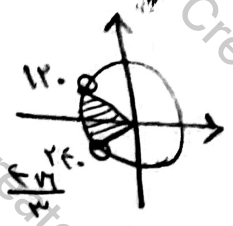
$x-1 > 0 \rightarrow x > 1$
 $\log_{\omega}(x-1) > 0$
 $x-1 > 1 \rightarrow x > 2$
 $x-1 \leq \omega$



3

الف) $y = \log(x \cos \theta + 1)$

$x \cos \theta + 1 > 0$
 $x \cos \theta > -1$
 $\cos \theta > -\frac{1}{x}$



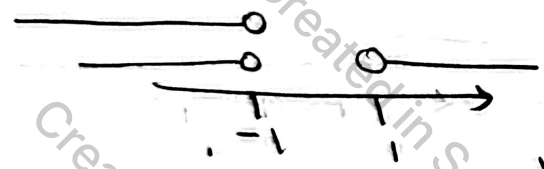
$D = (2k\pi + \frac{\pi}{3}, 2k\pi + \frac{2\pi}{3})$
 $D = (2k\pi + \frac{\pi}{3}, 2k\pi - \frac{\pi}{3})$

ب) $y = \sqrt{\log \frac{x-1}{x+1}}$

$\frac{x-1}{x+1} > 0$
 $\frac{-1}{+} = -$

$\log \frac{x-1}{x+1} \geq 0$

$\frac{x-1}{x+1} \geq 1$
 $\frac{x-1-x-1}{x(x+1)} \geq 0$



$\frac{-2}{x(x+1)} \geq 0$
 $\frac{-}{+} = -$

$D = (-\infty, -1)$