

سؤال B200 - يكتا ابري

(الف) $y = \frac{\sin x - 1}{1 \cos x + 1} = \rightarrow 1 \cos x + 1 \neq 0 \rightarrow \cos x \neq -\frac{1}{1}$

$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{1}, k\pi + \frac{\pi}{1}\}$



(ب) $y = \frac{\sin x + 1}{\cos x - 1} = \rightarrow \cos x - 1 \neq 0 \rightarrow \cos x \neq 1$

$D_f = \mathbb{R} - \{k\pi\}$



سؤال 2

(الف) $y = \frac{1 \sin x + 1}{\tan x + 1} = \rightarrow$

$\frac{\sin x}{\cos x} + 1 \neq 0 \rightarrow I: \frac{\sin x}{\cos x} \neq -1$

$II: \cos x \neq 0$

$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{1}, k\pi - \frac{\pi}{1}\}$



(ب) $y = \frac{\cos x + 1}{\cot x - 1} \Rightarrow I: \cot x \neq 1$
 $II: \sin x \neq 0$



$D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{1}\}$

سؤال 3

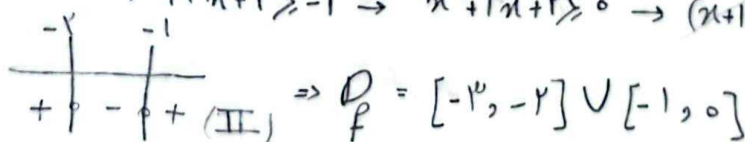
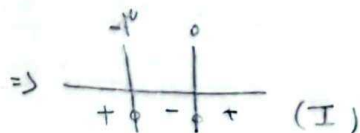
(الف) $\sin y = x^2 - 2 \rightarrow -1 \leq x^2 - 2 \leq 1 \rightarrow 1 \leq x^2 \leq 3 \rightarrow 1 \leq x \leq \sqrt{3}$
 $\Rightarrow D_f = [1, \sqrt{3}]$

(ب) $y = \arccos(\sqrt{x} - 2) \rightarrow -1 \leq \sqrt{x} - 2 \leq 1 \rightarrow 2 \leq \sqrt{x} \leq 3 \rightarrow 4 \leq x \leq 9$
 $\Rightarrow D_f = [4, 9]$

سؤال 4

(الف) $\cos y = |x| - 3 \rightarrow -1 \leq |x| - 3 \leq 1 \rightarrow \begin{cases} 2 \leq |x| \leq 4 \\ -4 \leq x \leq -2 \end{cases} \Rightarrow D_f = [2, 4] \cup [-4, -2]$

(ب) $y = \arcsin(x^2 + 1/x + 1)$
 $x^2 + 1/x + 1 \leq 1 \rightarrow x^2 + 1/x \leq 0 \rightarrow x(x + 1/x) \leq 0$
 $x^2 + 1/x + 1 \geq -1 \rightarrow x^2 + 1/x + 2 \geq 0 \rightarrow (x+1)(x+1/x) \geq 0$



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

سؤال ٤: $I: x^2 - 4 > 0 \rightarrow x^2 > 4 \rightarrow -2 < x < 2$ يكن المبرني
 (الف) $y = \log_3 x^2 - 4 \rightarrow D_f = (-2, 2)$ دسم B

(ب) $y = \log_2 x^2 - 4 \rightarrow I: x^2 - 4 > 0 \rightarrow |x| < 2 \rightarrow -2 < x < 2$
 $D_f = (-2, 2)$

سؤال ٥:
 (الف) $y = \log_{x-3} 5-x \Rightarrow I: 5-x > 0 \rightarrow x < 5$
 $II: x-3 > 0 \rightarrow x < 3 \Rightarrow D_f = (3, 5) - \{4\}$
 $III: x-3 \neq 1 \rightarrow x \neq 4$

(ب) $y = \log_{x+3} x^2 - 1 \rightarrow I: x^2 - 1 > 0 \rightarrow x^2 > 1 \rightarrow -1 < x < 1$
 $x+3 \rightarrow II: x+3 > 0 \rightarrow x > -3$
 $III: x+3 \neq 1 \rightarrow x \neq -2 \Rightarrow D_f = (-3, -1) \cup (1, +\infty) - \{-2\}$

سؤال ٦:
 (الف) $y = \log_{10} \frac{x^2 - 4x + 3}{x-3} \rightarrow \frac{x^2 - 4x + 3}{x-3} > 0 \rightarrow \frac{(x-1)(x-3)}{x-3} > 0$
 $D_f = (1, +\infty) - \{3\}$

(ب) $y = \log_{x+5} \frac{x+3}{x-2} \rightarrow \begin{cases} I: x+5 > 0 \rightarrow x > -5 \\ II: x+5 \neq 1 \rightarrow x \neq -4 \\ III: \frac{x+3}{x-2} > 0 \rightarrow \frac{-3}{+5} - \frac{2}{-} \end{cases}$
 $\Rightarrow D_f = (-5, -4) \cup (2, +\infty) - \{-4\}$

سؤال ٧:
 (الف) $y = \sqrt{3 - \log_2 (x-2)}$
 $I: x-2 > 0 \rightarrow x > 2$
 $II: 3 - \log_2 (x-2) \geq 0 \rightarrow \log_2 (x-2) \leq 3 \rightarrow x-2 \leq 8$
 $\Rightarrow D_f = (2, 10]$

(ب) $y = \log (2 \log_2 x - 1)$
 $I: x > 0$
 $II: 2 \log_2 x - 1 > 0 \rightarrow \log_2 x > \frac{1}{2} \rightarrow x > \sqrt{2}$
 $D_f = (\sqrt{2}, +\infty)$

سؤال ٨:

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

(ب) $y = \frac{x}{x^2 - 1} \rightarrow x^2 - 1 \neq 0 \rightarrow x^2 \neq 1 \rightarrow x \neq \pm 1 \Rightarrow D_f = \mathbb{R} - \{1, -1\}$

المسألة سؤال 9

$$ج) y = \frac{\mu}{r^x - r} \rightarrow r^x - r \neq 0 \rightarrow r^x \neq r \rightarrow D_f = \mathbb{R} - \{\log_r r\}$$

$$د) y = \frac{\mu}{r^x - r} \rightarrow r^x - r \neq 0 \rightarrow r^x \neq r \rightarrow D_f = \mathbb{R} - \{\log_r r\}$$

سؤال 10

$$الف) y = (f_{n+1})! \rightarrow f_{n+1} \in W' \rightarrow f_n \in W-1 \rightarrow n \in \frac{W-1}{r}$$

$$\Rightarrow D_f = \{n \mid n = \frac{k-1}{r}, k \in W\}$$

$$ب) y = \left(\frac{r^x - r}{r^x - \omega} \right)! \rightarrow \frac{r^x - r}{r^x - \omega} \in W' \rightarrow r^x - r \in r^x W' - \omega W'$$

$$r^x - r \in W' - \omega W' + r$$

$$x = \frac{-\omega W + r}{r - r W'} \Rightarrow$$

$$\Rightarrow D_f = \{x \mid x = \frac{-\omega k + r}{r - r k}, k \in W'\}$$