

نام و نام خانوادگی محمد علی پاسخنامه تشریحی تکلیف شماره ۶ کلاس دهم A

الف) $y = \sqrt{\frac{x^2 - 4x}{x^2 - x}} \rightarrow \sqrt{\frac{x(x-4)}{x(x^2-1)}} \rightarrow \frac{-1 \quad 0 \quad 1 \quad 4}{-\frac{1}{x} \quad + \frac{4}{x} \quad + \frac{1}{x} \quad - \frac{1}{x} +} \quad (-1 \ 0) \cup (0 \ 1) \cup (4 \ +\infty)$

ب) $y = \sqrt{\frac{x^3 - x^2}{x^3 - x}} \rightarrow \sqrt{\frac{x^2(x-1)}{x(x^2-1)}} \rightarrow \frac{x-1 \quad x \quad x \quad 1}{+\frac{1}{x} \quad + \frac{1}{x} \quad + \frac{1}{x} \quad +} \quad (-\infty -1) \cup (-1 \ 0) \cup (0 \ 1) \cup (1 \ +\infty)$

الف) $y = \frac{x+1}{\sqrt{x+|x|}} \rightarrow x+|x| > 0 \rightarrow D_f = \mathbb{R}^+$

$\oplus \checkmark$
 $\ominus \times$
 $\ominus \times$

ب) $y = \frac{1}{\sqrt{x|x|}} \rightarrow x|x| > 0 \rightarrow D_f = \mathbb{R}^+$

$\oplus \checkmark$
 $\ominus \times$

الف) $y = \sqrt{2 - [x]} \rightarrow 2 - [x] \geq 0 \rightarrow 2 \geq [x] \rightarrow D_f = (-\infty \ 2)$

ب) $y = \frac{1}{\sqrt{2 - [x]}} \rightarrow 2 - [x] > 0 \rightarrow 2 > [x] \rightarrow D_f = (-\infty \ 2)$

الف) $y = \sqrt{\left[x - \frac{1}{x}\right] + \left[x + \frac{1}{x}\right]} \rightarrow \sqrt{\left[x + \frac{1}{x} - 1\right] + \left[x + \frac{1}{x}\right]} \rightarrow \sqrt{\left[x + \frac{1}{x}\right] - 1} \rightarrow 2\left[x + \frac{1}{x}\right] - 1 \geq 0$
 $\rightarrow 2\left[x + \frac{1}{x}\right] \geq 1 \rightarrow \left[x + \frac{1}{x}\right] \geq \frac{1}{2} \rightarrow D_f = \left[\frac{1}{2} \ +\infty\right)$

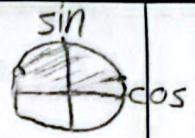
ب) $y = \sqrt{\left[x - \frac{1}{x}\right] + \left[-x + \frac{1}{x}\right]} \rightarrow \sqrt{\left[x - \frac{1}{x}\right] + \left[-\left(x - \frac{1}{x}\right)\right]} \rightarrow x - \frac{1}{x} \in \mathbb{Z} \rightarrow x \in \mathbb{Z} + \frac{1}{x}$
 $\textcircled{1} \quad [T] + [-T] = \dots \dots \dots D_f = \left\{x = k + \frac{1}{x} \mid k \in \mathbb{Z}\right\}$

الف) $y = \frac{2}{\sin x - 1} \rightarrow \sin x - 1 \neq 0 \rightarrow \sin x \neq 1 \rightarrow D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{2}\right\}$

ب) $y = \frac{3}{2\sin^2 x - 1} \rightarrow 2\sin^2 x - 1 \neq 0 \rightarrow 2\sin^2 x \neq 1 \rightarrow \sin^2 x \neq \frac{1}{2} \rightarrow$
 $D_f = \mathbb{R} - \left\{k\pi \pm \frac{\pi}{4}\right\}$

الف) $y = \sqrt{2\sin x - 1} \rightarrow 2\sin x - 1 \geq 0 \rightarrow 2\sin x \geq 1 \rightarrow$

$D_f = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$



ب) $y = \sqrt{\cos x - 1} \rightarrow \cos x - 1 \geq 0 \rightarrow \cos x \geq 1 \rightarrow D_f = \{2k\pi\}$

الف) $\cos y = |x| - 3 \rightarrow -1 \leq |x| - 3 \leq 1 \rightarrow D_f = [-2, 2]$

ب) $y = \arcsin(x^2 + 3x + 1) \rightarrow -1 \leq x^2 + 3x + 1 \leq 1 \quad A \cap B = [-3, -2] \cup [-1, 0]$

أ) $0 \leq x^2 + 3x + 1 \rightarrow 0 \leq (x+1)(x+1) \quad \frac{-1}{+} \quad \frac{-1}{-} \quad \text{B) } x^2 + 3x \leq 0 \rightarrow x(x+3) \leq 0 \quad \frac{-3}{+} \quad \frac{0}{-}$

الف) $y = \sqrt{2 - \log_2(x-2)} \rightarrow x-2 \geq 0 \rightarrow x \geq 2 \rightarrow D_f = [2, \infty)$
 $x-2 \leq 9 \rightarrow x \leq 11$

ب) $y = \log(x^2 - x) \rightarrow x^2 - x \geq 0 \rightarrow x(x-1) \geq 0 \rightarrow \frac{-1}{-} \quad \frac{0}{+} \quad \frac{1}{+}$
 $D_f = (-1, 0) \cup (1, +\infty)$

الف) $y = \frac{3}{e^x + 1} \rightarrow e^x + 1 \neq 0 \rightarrow e^x \neq -1 \rightarrow x \in \mathbb{R} \rightarrow D_f = \mathbb{R}$

ب) $y = \frac{3}{e^x - 1} \rightarrow e^x - 1 \neq 0 \rightarrow e^x \neq 1 \rightarrow x \neq 0 \rightarrow D_f = \mathbb{R} - \{0\}$

ج) $y = \frac{3}{e^x - 2} \rightarrow e^x - 2 \neq 0 \rightarrow e^x \neq 2 \rightarrow x \neq \log_2 2 \rightarrow D_f = \mathbb{R} - \{\log_2 2\}$

د) $y = \frac{3}{e^x - 3} \rightarrow e^x - 3 \neq 0 \rightarrow e^x \neq 3 \rightarrow x \neq \log_2 3 \rightarrow D_f = \mathbb{R} - \{\log_2 3\}$

الف) $y = (e^x + 1)!$ $e^x + 1 \in \mathbb{W} \rightarrow e^x \in \mathbb{W} - 1 \rightarrow x \in \frac{\mathbb{W} - 1}{e} \rightarrow D_f = \left\{ x = \frac{k-1}{e} \mid k \in \mathbb{W} \right\}$

ب) $y = \left(\frac{3x-2}{2x-5} \right)!$ $\frac{3x-2}{2x-5} \in \mathbb{W} \rightarrow 3x-2 = 2x-5 \rightarrow 3x-2x = 2-5$
 $\rightarrow x = \frac{2-5}{3-2} \rightarrow D_f = \left\{ x \mid x = \frac{5k-2}{3-2}, k \in \mathbb{W} \right\}$