

نام و نام خانوادگی: محمد رضا شریقی پاسنامه تشریحی تکلیف شماره ۴ کلاس: ۴ B

الف) $y = \sqrt{4 - \sqrt{2-x}}$ $\rightarrow 2-x \geq 0 \Rightarrow x \leq 2$
 $Df = [-1, 2]$ $\rightarrow 4 - \sqrt{2-x} \geq 0 \Rightarrow 4 \geq \sqrt{2-x} \Rightarrow 2-x \leq 16 \Rightarrow x \geq -14$

ب) $y = \sqrt{3 - \sqrt{x-2}}$ $\rightarrow x-2 \geq 0 \Rightarrow x \geq 2$
 $Df = [2, 11]$ $\rightarrow 3 - \sqrt{x-2} \geq 0 \Rightarrow 3 \geq \sqrt{x-2} \Rightarrow 11 \geq x$

الف) $y = \sqrt{4 - 2x^2}$ $\Rightarrow 4 - 2x^2 \geq 0 \Rightarrow 2 \geq 2x^2 \Rightarrow 2 \geq x^2$
 $Df = [-\sqrt{2}, +\sqrt{2}]$ $\rightarrow -\sqrt{2} \leq x \leq \sqrt{2}$

ب) $y = \sqrt{3|x| - 9}$ $Df = [3, +\infty) \cup (-\infty, -3]$
 $3|x| - 9 \geq 0 \Rightarrow 3|x| \geq 9 \Rightarrow |x| \geq 3 \Rightarrow x \geq 3, x \leq -3$

الف) $y = \sqrt[3]{3 - |x|}$ $\Rightarrow 3 - |x| \geq 0 \Rightarrow 3 \geq |x| \Rightarrow x \leq 3, x \geq -3$
 $Df = [-3, 3]$ $\rightarrow$ همیشه مثبت

ب) $y = \sqrt[3]{\sqrt{x} + 1}$
 $Df = \mathbb{R}^+$ $\rightarrow \sqrt{x} - 3 \neq 0 \Rightarrow \sqrt{x} \neq 3 \Rightarrow x \neq 9$

الف) $y = \frac{\sqrt{3 - |x|}}{|x| + 2}$ $\Rightarrow 3 - |x| \geq 0 \Rightarrow 3 \geq |x| \Rightarrow x \leq 3, -3 \leq x$
 $Df = [-3, 3]$ $\rightarrow$ همیشه مثبت

ب) $y = \frac{\sqrt{4 - x^2}}{|x| - 1}$ $\rightarrow 4 - x^2 \geq 0 \Rightarrow 2 \geq x^2 \Rightarrow -2 \leq x \leq 2$ $Df = [-2, 2] \setminus \{-1, 1\}$
 $|x| - 1 \neq 0 \Rightarrow |x| \neq 1 \Rightarrow x \neq \pm 1$

الف) $y = \frac{x+1}{\sqrt{x+|x|}}$ $\Rightarrow x+|x| > 0$ $|x| > -x$
 $Df = \mathbb{R}^+$ $\rightarrow$ $-1 < -(-1) \times$ $|+1| > -1$
 $|0| = -(0) = 0 \times$

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

$0 \times |0| = 0 \times$
 $-1 \times |-1| = -1 \times$
 $2 \times 2 = 4 \checkmark$

الف) $y = \sqrt{2-x} \Rightarrow 2-x \geq 0 \Rightarrow 2 \geq x \Rightarrow Df = (-\infty, 2]$

ب) $y = \frac{1}{\sqrt{2-x}} \Rightarrow 2-x > 0 \Rightarrow 2 > x \Rightarrow Df = (-\infty, 2)$

الف) $y = \frac{1}{x[x]} \Rightarrow x[x] > 0 \Rightarrow Df = (-\infty, 0) \cup (1, +\infty)$

ب) $y = \frac{1}{\sqrt{-x[x]}}$
 $\oplus \Rightarrow -1 \times 2 = -2 \times$
 $\ominus \Rightarrow -0 \times 0 = 0$ مندرجہ بالا صحیح ہے
 $\ominus \Rightarrow +1 \times -1 = -1 \times$
 $Df = \emptyset$

الف) $y = \sqrt{[x-\frac{1}{p}][x+\frac{1}{p}]} \Rightarrow [x-\frac{1}{p}] + [x-\frac{1}{p}+1] \geq 0$

ب) $y = \sqrt{[x-\frac{1}{p}][x+\frac{1}{p}]}$
 $[x-\frac{1}{p}] + [x-\frac{1}{p}] + 1 \geq 0 \Rightarrow 2[x-\frac{1}{p}] \geq -1 \Rightarrow [x-\frac{1}{p}] \geq -\frac{1}{2}$
 $Df = [\frac{1}{p}, +\infty) \cap x \geq \frac{1}{p}$ (تنبیہ: اگر منفی کی بات ہے۔)

$[x-\frac{1}{p}][x+\frac{1}{p}] \geq 0 \Rightarrow x-\frac{1}{p} \in \mathbb{Z} \Rightarrow Df = \{x | x = k + \frac{1}{p}, k \in \mathbb{Z}\}$
 $\Rightarrow a \in \mathbb{Z} \Rightarrow [a] + [-a] = 0$; $a \notin \mathbb{Z} \Rightarrow [a] + [-a] = -1$

الف) $y = \frac{1}{2\sin^2 x - 1} \Rightarrow 2\sin^2 x - 1 \neq 0 \Rightarrow 2\sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{2}$
 $Df = \mathbb{R} - \{ \frac{k\pi}{2} + \frac{\pi}{4} \}$ (Unit Circle diagram)

الف) $y = \frac{\cot x + 1}{\tan x + 1}$ $\tan x + 1 \neq 0 \Rightarrow \tan x \neq -1$
 $\cot x = \frac{\cos x}{\sin x} \Rightarrow \sin x \neq 0 \Rightarrow \tan x = \frac{\sin x}{\cos x} \Rightarrow \cos x \neq 0$
 $Df = \mathbb{R} - \{ \frac{k\pi}{2} + \frac{3\pi}{4} \}$ (Unit Circle diagram)

الف) $\sqrt{2\sin x - 1}$ $2\sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{2} \Rightarrow \sin x \geq \frac{1}{2}$
 $Df = [2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}]$ (Unit Circle diagram)

ب) $\sqrt{1-2\cos x}$ $1-2\cos x \geq 0 \Rightarrow 2\cos x \leq 1 \Rightarrow \cos x \leq \frac{1}{2}$
 $Df = [2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3}]$ (Unit Circle diagram)