

پیریان باقری / پاسنامه تکلیف ۴ / بازدهی دفتر A

$$a=2 \rightarrow 2x+b > 0$$

$$x=3 \rightarrow 4+b=0 \rightarrow b=-4$$

$$4 - 4(2 - m^2) \leq 0$$

$$m^2 \leq 1 \rightarrow -1 \leq m \leq 1$$

$$1 - (-1) = 2 \quad \checkmark$$

$$x \in \mathbb{Z} \quad p_{(x)} = \frac{\sqrt{4-x^2}}{1}$$

$$\downarrow$$

$$[x] + [-x] = 0$$

$$4 - x^2 > 0$$

$$-2 < x < 2, x \in \mathbb{Z} \rightarrow$$

مجموع

$$x \notin \mathbb{Z} \rightarrow [x] + [-x] = -1 \rightarrow \frac{\sqrt{4-x^2}}{0} : \text{تن}$$

$$\text{الف) } x^3 + 13x^2 > 0 \quad x^2(x+13) > 0$$

$$D_f = [-13, +\infty)$$

$$x = \pm 1$$

$$b) \sqrt{\frac{(x^2-1)(x^3-13x^2)}{x^3-1}} \rightarrow x=0, 13$$

$$\downarrow$$

$$x=1$$

$$\begin{array}{c|c|c|c} -13 & * & 0 & * \\ \hline - & + & 0 & + \end{array}$$

$$\begin{array}{c|c|c|c|c|c} -1 & * & 0 & 1 & 13 & * \\ \hline + & - & 0 & - & 0 & + \\ \hline + & + & 0 & + & 1 & + \end{array}$$

$$D_f = (-\infty, -1] \cup [13, +\infty)$$

$$الف) y = \sqrt{|x-2|} - 3$$

د

$$|x-2| - 3 \geq 0 \rightarrow |x-2| \geq 3$$

$$x-2 \geq 3 \rightarrow x \geq 5 \quad \checkmark$$

$$x-2 \leq -3 \rightarrow x \leq -1$$

$$D_f = (-\infty, -1] \cup [5, +\infty)$$

$$ب) y = \sqrt{4 - |x-2|}$$

$$4 - |x-2| \geq 0 \rightarrow |x-2| \leq 4$$

$$-4 \leq x-2 \leq 4$$

$$-2 \leq x \leq 6$$

$$D_f = [-2, 6]$$

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$$الف) y = \sqrt{1 - x|x|}$$

$$1 - x|x| \geq 0 \rightarrow x|x| \leq 1$$

$$x \geq 0 \rightarrow x^2 \leq 1 \rightarrow -1 \leq x \leq 1$$

$$x \leq 0 \rightarrow 1 \leq x^2 \rightarrow (-\infty, -1] \cup [1, +\infty)$$

$$\Rightarrow D_f = (-\infty, -1] \cup [0, 1]$$

$$ب) \frac{1}{\sqrt{3 - |x-2|}}$$

$$3 - |x-2| > 0, \neq 1$$

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

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

$$D_f = [1, 5] - \{1, 3\} \leftarrow -1 < x < 5$$

←

الف) $y = \frac{\sin^2 x - 1}{\cos x}$

$$\cos x \neq 0$$

$$D_f = \mathbb{R} - \left\{ 12\pi + \frac{\pi}{4} \right\}$$

V

ب) $y = \frac{\cos x}{4\cos x - 1}$

$$\cos x \neq \frac{1}{4}$$

$$D_f = \mathbb{R} - \left\{ 4k\pi \pm \frac{\pi}{3} \right\}$$

الف) $\frac{x+3}{|4x+1| - |x+3|}$

A

$$|4x+1| = |x+3| \quad x=2$$

$$f(x)^2 + f(x) + 1 = x^2 + 4x + 9$$

$$x^2 - 4x - 1 = 0$$

$$\frac{4 \pm 1}{4} = 2, \frac{-f}{4} \Rightarrow x \neq 2, \frac{-f}{4}$$

$$D_f = \mathbb{R} - \left\{ 2, \frac{-f}{4} \right\}$$

ب) $|4x+1| > |x+3| \Rightarrow f(x)^2 + f(x) + 1 > x^2 + 4x + 9$

$$x^2 - 4x - 1 > 0$$

$$D_f = (-\infty, \frac{-f}{4}] \cup [2, +\infty)$$

$\frac{-f}{4}$	2
+	-
+	+

$$\log_{\frac{1}{a}} \log_a^{2x-1} > 0$$

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$$\log_{\frac{1}{a}}^{2x-1} > 0, \quad 2x-1 > 0 \leadsto x > \frac{1}{2}$$

$$\begin{aligned} 2x-1 > 1 & \quad \log_{\frac{1}{a}}^{2x-1} > 1 \leadsto 2x-1 > a \leadsto x > \frac{1}{2} \\ x > 1 & \quad D_f = (1, +\infty) \end{aligned}$$

الف) $y = \log(2\cos x + 1)$

$$2\cos x + 1 > 0$$

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$$\cos x > -\frac{1}{2}$$

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

ب) $y = \sqrt{\log \frac{x-1}{x+1}}$... $\frac{x-1}{x+1} > 0$

$$\log \frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} > 1$$

$$\frac{x-1 - x-1}{x+1} = \frac{-2}{x+1} > 0$$

$$\leadsto x < -1$$

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