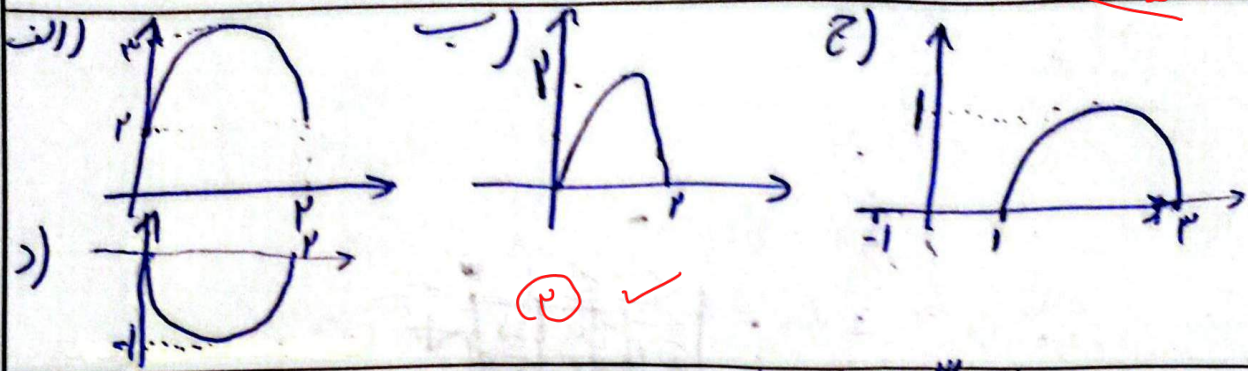




الف) $x^2 - 2x + 2 > 0 \rightarrow (x-1)(x-2)$ $(-\infty, 1) \cup (2, +\infty)$

ب) $x^2 - 4x + 5 < 0$ $(1, 3)$

ج) $x^2 + 6x + 5 \geq 0 \rightarrow (x+1)(x+5)$ $(-\infty, -5] \cup [-1, +\infty)$

الف) $x^2 - 3x + 2 < 0 \rightarrow (x-1)(x-2)$ $(1, 2)$

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

ج) $x^2 - 6x + 5 \geq 0 \rightarrow (x-1)(x-5)$ $(-\infty, 1] \cup [5, +\infty)$

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ج) $x^2 - 6x + 5 \geq 0 \rightarrow (x-1)(x-5)$ $(-\infty, 1] \cup [5, +\infty)$

الف) $y = \sqrt{x^2 - 1} \rightarrow x^2 - 1 = 0 \rightarrow x = \pm 1$ $(-\infty, -1] \cup [1, +\infty)$

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ج) $y = \sqrt{x^2 - 1}$ $(-\infty, -1] \cup [1, +\infty)$

ا) $y = \sqrt{4-x^2} \rightarrow 4-x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2$
 $Df = [-2, 2]$ (✓)

ب) $y = \sqrt{3|x|-4} \rightarrow 3|x|-4 \geq 0 \rightarrow 3|x| \geq 4 \rightarrow |x| \geq \frac{4}{3}$
 $x \leq -\frac{4}{3}, x \geq \frac{4}{3} \quad Df = (-\infty, -\frac{4}{3}] \cup [\frac{4}{3}, +\infty)$

ا) $y = \sqrt{\frac{|x|+1}{|x|-3}} \rightarrow x \neq \pm 3 \rightarrow Df = \mathbb{R} - \{-3, +3\}$ (✓)

ب) $y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \rightarrow \sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9, Df = \mathbb{R} - \{9\}$

ا) $y = \frac{\sin x}{x \cos x - 1} \rightarrow x \cos x - 1 \neq 0 \rightarrow x \cos x \neq 1 \rightarrow \cos x \neq \frac{1}{x}$
 $Df = \mathbb{R} - \{2k\pi - \frac{\pi}{2}\} \cup Df = \mathbb{R} - \{2k\pi \pm \frac{\pi}{2}\}$ (✓)

ب) $y = \cos(x+1) \rightarrow x \sin(x+1) \neq 0 \rightarrow x \sin(x+1) \neq 1 \rightarrow \sin(x+1) \neq \frac{1}{x}$
 $Df = \mathbb{R} - \{2k\pi - \frac{\pi}{2}\} \cup Df = \mathbb{R} - \{2k\pi \pm \frac{\pi}{2}\}$
 ج) $y = \tan(x+1) \rightarrow \frac{\sin}{\cos} \rightarrow \cos \neq 0 \rightarrow \cot(x+1) \neq 0 \rightarrow \cot(x+1) \neq 1, Df = \mathbb{R} - \{k\pi, k\pi + \pi\}$
 $\cot(x+1) \rightarrow \frac{\cos}{\sin} \rightarrow \sin \neq 0 \rightarrow Df = \mathbb{R} - \{k\pi \pm \pi\}$

$y = x \frac{1}{\sqrt{x(x-1) - \frac{1}{x}}} \rightarrow x(x-1) - \frac{1}{x} > 0 \rightarrow x(x-1) > \frac{1}{x}$
 $|x-1| > \frac{1}{x} \rightarrow x-1 < -\frac{1}{x} \rightarrow x < \frac{1}{x} \rightarrow x < \frac{1}{x}$
 $Df = (-\infty, \frac{1}{x}) \cup (\frac{1}{x}, +\infty)$ (✓)

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

ب) $y = \sqrt{\frac{|x|}{|x|}} \rightarrow x \neq 0, Df = \mathbb{R} - \{0\}$ (✓)