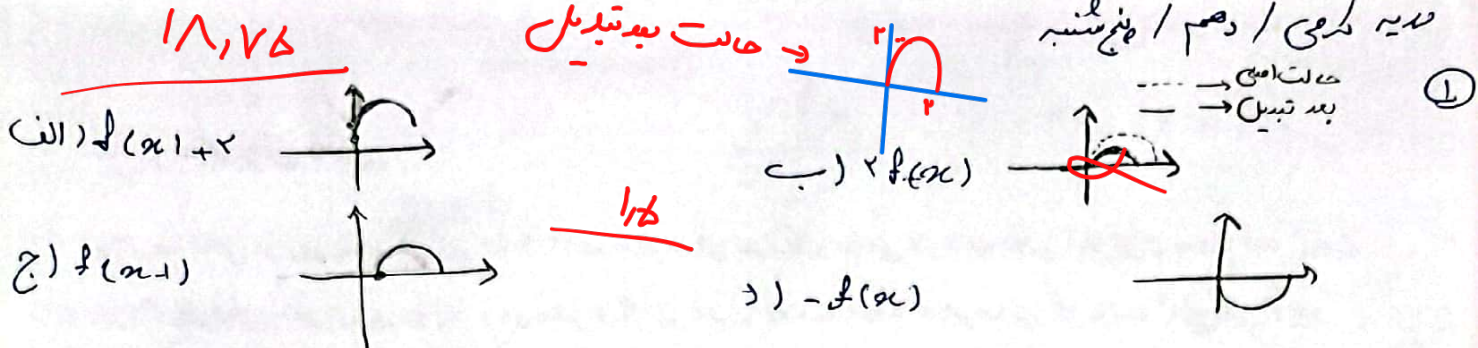




الف)  $x^2 - 4x + 4 > 0$

$\hookrightarrow (x-2)(x-2) + \frac{2}{1} - \frac{2}{1} +$

$\hookrightarrow \frac{2}{1} \quad \frac{2}{1}$

$D_f = (-\infty, 2) \cup (2, +\infty)$

ب)  $x^2 - 4x + 4 < 0$

$\hookrightarrow (x-1)(x-4)$

$\hookrightarrow \frac{1}{1} \quad \frac{4}{1}$

$D_f = (1, 4)$

ج)  $x^2 + 4x + 4 \geq 0$

$\hookrightarrow (x+1)(x+1) + \frac{-1}{1} - \frac{-1}{1} +$

$\hookrightarrow \frac{-1}{1} \quad \frac{-1}{1}$

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

د)  $x^2 - 5x + 4 \leq 0$

$\hookrightarrow (x-1)(x-4)$

$\hookrightarrow \frac{1}{1} \quad \frac{4}{1}$

$D_f = [1, 4]$

الف)  $\frac{x^2 - 2x + 2}{x-1} < 0$

$\hookrightarrow \frac{1}{1} \quad \frac{2}{1} \quad \frac{2}{1}$

$D_f = (-\infty, 1) \cup (2, 4)$

ب)  $\frac{x^2 - 1}{x^2 - 2x + 4} \geq 0$

$\hookrightarrow \frac{1}{1} \quad \frac{-1}{1} \quad \frac{1}{1} \quad \frac{4}{1}$

$D_f = (-\infty, -1] \cup (4, +\infty)$

الف)  $y = \sqrt{x^2 - 1}$

$x^2 - 1 \geq 0$

$\hookrightarrow (x-1)(x+1) \geq 0$

$\hookrightarrow \frac{1}{1} \quad \frac{-1}{1}$

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

ب)  $y = \sqrt{\frac{x^2 - 1}{x^2 - 4x + 4}}$

$\frac{x^2 - 1}{x^2 - 4x + 4} \geq 0$

$\hookrightarrow \frac{1}{1} \quad \frac{-1}{1} \quad \frac{4}{1} \quad \frac{4}{1}$

$D_f = (-\infty, -1] \cup (1, 4) \cup (4, +\infty)$

الف)  $y = \sqrt{4 - \sqrt{2x-2}}$

$4 - \sqrt{2x-2} \geq 0$

$\hookrightarrow 4 \geq \sqrt{2x-2}$

$\hookrightarrow 16 \geq 2x-2$

$\hookrightarrow 14 \geq 2x$

$\hookrightarrow 7 \geq x$

$D_f = [-1, 7]$

ب)  $y = \sqrt{3 - \sqrt{2x-2}}$

$3 - \sqrt{2x-2} \geq 0$

$\hookrightarrow 3 \geq \sqrt{2x-2}$

$\hookrightarrow 9 \geq 2x-2$

$\hookrightarrow 11 \geq 2x$

$D_f = [2, 11]$

8

الف)  $y = \sqrt{4-x^2} \rightarrow 4-x^2 \geq 0$   
 $4 \geq x^2$   
 $2 \geq |x|$

$-\sqrt{2} \leq x \leq \sqrt{2}$   $D_f = [-\sqrt{2}, \sqrt{2}]$  (د) ✓

ب)  $y = \sqrt{4|x|-9} \rightarrow 4|x|-9 \geq 0$   
 $D_f = (-\infty, -3] \cup [3, +\infty)$  (د) ✓

9

الف)  $y = \sqrt{\frac{|x|+1}{|x|-3}}$   
 $|x|-3 \neq 0$   
 $|x| \neq 3$   
 $x \neq \pm 3$   
 $D_f = \mathbb{R} - \{\pm 3\}$  (د) ✓

ب)  $y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$   $x \geq 0$   
 $\sqrt{x}-3 \neq 0$   
 $\sqrt{x} \neq 3$   
 $x \neq 9$   
 $D_f = [0, 9) \cup (9, +\infty)$  (د) ✓

10

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



ب)  $y = \frac{\cos x + 1}{\sin x + 1}$   $\sin x + 1 \neq 0$   
 $\sin x \neq -1$   
 $\sin x \neq -\frac{1}{1}$   
 $D_f = \mathbb{R} - \{2k\pi - \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2}\}$

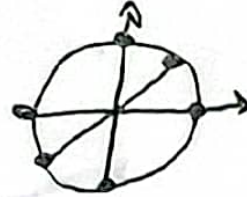


11

$y = \frac{1}{\sqrt{4|x-2| - \frac{1}{4}}} \Rightarrow 4|x-2| - \frac{1}{4} > 0$   
 $4|x-2| > \frac{1}{4}$   
 $|x-2| > \frac{1}{16}$   
 $x-2 > \frac{1}{16} \rightarrow x > 2, \frac{1}{16}$   
 $x-2 < -\frac{1}{16} \rightarrow x < 2, \frac{1}{16}$   
 $D_f = (-\infty, 2, \frac{1}{16}) \cup (2, \frac{1}{16}, +\infty)$  (د) ✓

پیشینه یادیم رفت سوال ۱۱ ادا نه داره (؟)  
 ادا نه ۱

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

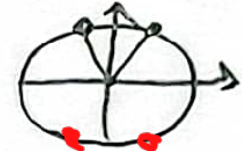


4, 7, 8

ج)  $y = \frac{\tan x + 1}{\cos \sin}$   $\frac{\sin}{\cos} \rightarrow \cos \neq 0$   
 $\frac{\cos}{\sin} \leftarrow \cot x - 1 \rightarrow \frac{\cos}{\sin} - 1 \neq 0$   
 $\sin \neq 0$   
 $\frac{\cos}{\sin} \neq 1$

د)  $\sin x + 1$

$$f \sin^2 x - 3 \neq 0 \rightarrow f \sin^2 x \neq 3 \rightarrow \sin^2 x \neq \frac{3}{f} \rightarrow \sin x \neq \pm \frac{\sqrt{3}}{f}$$



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

$k\pi + \frac{\pi}{2}$

10

الف)  $y = \sqrt{f - 2|x|} \rightarrow f - 2|x| \geq 0$   
 $f \geq 2|x| \rightarrow f \geq |x|$   
 $f \geq |x| \rightarrow -f \leq x \leq f$   
 $D_f \in [-f, f]$   
 دانه

ب)  $y = \sqrt{\frac{|x|}{|x|+1}}$   $|x| \neq 0 \rightarrow x \neq 0$   
 بقیه اعداد جواب است  
 $D_f = \mathbb{R} - \{0\}$

۳ ✓