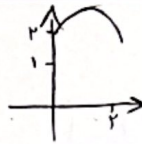
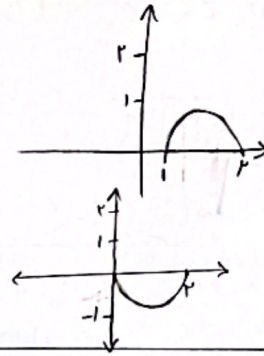


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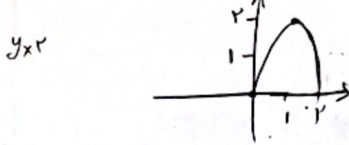
الف) $f(x) + 2$



ج) $f(x-1)$



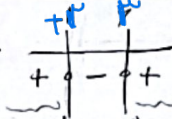
ب) $2f(x)$



د) $-f(x)$

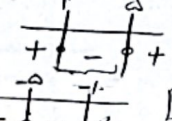
✓

الف) $x^2 - 5x + 4 > 0 \rightarrow (x-1)(x-4) > 0$



$D = (-\infty, 1) \cup (4, \infty)$

ب) $x^2 - 6x + 5 < 0 \rightarrow (x-1)(x-5) < 0$

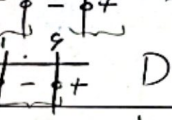


$D = (1, 5)$

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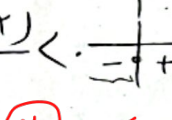
✓

ج) $x^2 + 6x + 5 \geq 0 \rightarrow (x+1)(x+5) \geq 0$



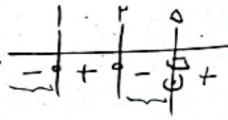
$D = [-5, \infty) \cup (-\infty, -1]$

د) $x^2 - 7x + 6 \leq 0 \rightarrow (x-1)(x-6) \leq 0$



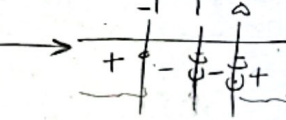
$D = [1, 6]$

الف) $\frac{x^2 - 3x + 2}{x-5} < 0 \rightarrow \frac{(x-1)(x-2)}{x-5} < 0$



$D = (-\infty, 1) \cup (2, 5)$

ب) $\frac{x^2 - 1}{x^2 - 6x + 5} \geq 0 \rightarrow \frac{(x-1)(x+1)}{(x-1)(x-5)} \geq 0$



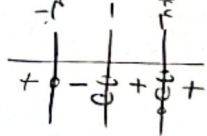
$D = (-\infty, -1] \cup (5, \infty)$

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \geq 0 \rightarrow \frac{x^2 - 1}{x^2 - x} \geq 0 \rightarrow \frac{x^2 - 1}{x(x^2 - 1)} = \frac{x^2 - 1}{x(x+1)(x-1)} \geq 0$

$D = (-\infty, -1] \cup (0, \infty) - \{1\}$

✓

ب) $y = \sqrt{\frac{x^2 - 14}{x^2 - 5x + 4}} \geq 0 \rightarrow \frac{(x+4)(x-4)}{(x-1)(x-4)} \geq 0$



$D = (-\infty, -4] \cup (1, \infty) - \{4\}$

الف) $y = \sqrt{4 - \sqrt{2-x}} \geq 0 \rightarrow 4 - \sqrt{2-x} \geq 0 \rightarrow 4 \geq \sqrt{2-x} \rightarrow 16 \geq 2-x \rightarrow x \geq -14$

$D = [-14, \infty)$

$[-14, 2]$

۱)

ب) $y = \sqrt{3 - \sqrt{x-2}} \geq 0 \rightarrow 3 - \sqrt{x-2} \geq 0 \rightarrow 3 \geq \sqrt{x-2} \rightarrow 9 \geq x-2 \rightarrow x \leq 11$

$D = (-\infty, 11]$

$[2, 11]$

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

✓

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

$y = \sqrt{\frac{|x|+1}{|x|-3}} \rightarrow \frac{|x|+1}{|x|-3} \xrightarrow{\text{جبروت هفتم}} \frac{|x|+1}{|x|-3} \rightarrow D = \mathbb{R} - \{3, -1\}$

مذکورہ بالا نکات باید تفریق شود

ب) $y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}} \rightarrow \frac{\sqrt{x}+1}{\sqrt{x}-3} \xrightarrow{\text{جبروت هفتم}} \frac{\sqrt{x}+1}{\sqrt{x}-3} \rightarrow D = \mathbb{R} - \{9\}$

الف) $y = \frac{\sin x}{2\cos x - 1} \rightarrow 2\cos x \neq 1 \rightarrow \cos x \neq \frac{1}{2} \rightarrow x \neq \frac{\pi}{3}, \frac{5\pi}{3} \quad D = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\}$

ب) $\frac{\cos x + 1}{2\sin x + 1} \rightarrow \sin x \neq -\frac{1}{2} \rightarrow x \neq \frac{7\pi}{6}, \frac{11\pi}{6} \quad D = \mathbb{R} - \{2k\pi - \frac{11\pi}{6}, 2k\pi + \frac{7\pi}{6}\}$

ج) $\frac{\tan x + 2}{\cot x - 1} \rightarrow \tan x \neq \frac{1}{2} \rightarrow x \neq \frac{\pi}{4}, \frac{5\pi}{4} \quad D = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}\}$

د) $\frac{\sin x + 1}{2\sin x - 3} \rightarrow \sin x \neq \frac{3}{2} \rightarrow \sin x \neq \frac{3}{2} \rightarrow D = \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi - \frac{3\pi}{2}\}$

$y = \frac{1}{\sqrt{2|x-2| - \frac{1}{x}}} \rightarrow 2|x-2| - \frac{1}{x} > 0 \rightarrow 2|x-2| > \frac{1}{x} \rightarrow |x-2| > \frac{1}{2x}$

$D = (-\infty, \frac{1}{2}) \cup (\frac{1}{2}, +\infty)$

✓

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

$D = [-2, 2]$

✓

ب) $\sqrt{\frac{|x|}{|x|}} \geq 0 \rightarrow \frac{|x|}{|x|} \geq 0 \rightarrow D = \mathbb{R} - \{0\}$