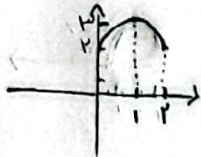
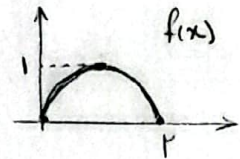
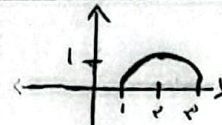


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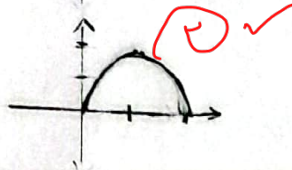


ب) ب

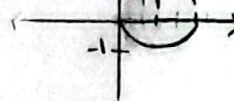


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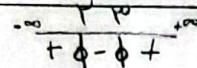
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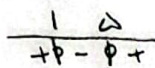


الف) $(x-2)(x-3) > 0 \Rightarrow x = 2, 3$



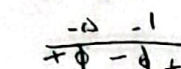
$D = (-\infty, 2) \cup (3, +\infty)$

ب) $(x-1)(x-4) < 0 \Rightarrow x = 1, 4$



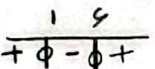
$D = (1, 4)$

ج) $(x+1)(x+4) \geq 0 \Rightarrow x = -1, -4$



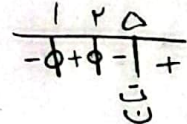
$D = (-\infty, -4] \cup [-1, +\infty)$

د) $(x-1)(x-6) \leq 0 \Rightarrow x = 1, 6$



$D = (-\infty, 1] \cup [6, +\infty)$

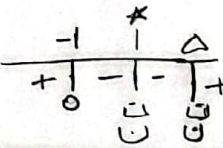
الف) $\frac{(x-1)(x-2)}{x-4} < 0 \Rightarrow x = 1, 2, 4$



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

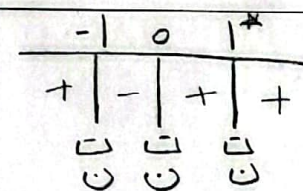
ب) ب

ب) $\frac{(x+1)(x-1)}{(x-1)(x-4)} \geq 0 \Rightarrow x = \pm 1, 4$



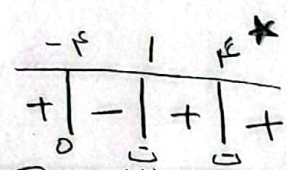
$D = (-\infty, -1] \cup (4, +\infty)$

الف) $\frac{x^3-1}{x^3-x} \geq 0 \Rightarrow \frac{(x-1)(x^2+x+1)}{x(x-1)(x+1)} \geq 0 \Rightarrow x = \pm 1, 0$



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

ب) $\frac{x^2-16}{x^2-4x+4} \geq 0 \Rightarrow \frac{(x-4)(x+4)}{(x-2)^2} \geq 0 \Rightarrow x = \pm 4, 2$



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

الف) $\begin{cases} 4 - \sqrt{2-x} \geq 0 \Rightarrow 4 \geq \sqrt{2-x} \Rightarrow 16 \geq 2-x \Rightarrow x \leq 14 \\ x-2 \geq 0 \Rightarrow x \geq 2 \end{cases}$

$D = [-2, 14]$

ب) $\begin{cases} 3 - \sqrt{2x-2} \geq 0 \Rightarrow 3 \geq \sqrt{2x-2} \Rightarrow 9 \geq 2x-2 \Rightarrow x \leq 11 \\ x-2 \geq 0 \Rightarrow x \geq 2 \end{cases}$

$D = [2, 11]$

الف) $4 - 2x^2 \geq 0 \Rightarrow 2(2 - x^2) \geq 0 \Rightarrow x = \pm \sqrt{2}$
 $D = [-\sqrt{2}, \sqrt{2}]$

$\frac{-\sqrt{2} \quad \sqrt{2}}{- \quad + \quad +}$

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ب) $3|x| - 9 \geq 0 \Rightarrow 3(|x| - 3) \geq 0 \Rightarrow |x| - 3 \geq 0 \Rightarrow |x| \geq 3$
 $x \geq 3 \text{ or } x \leq -3$
 $D = (-\infty, -3] \cup [3, +\infty)$

الف) $|x| - 3 \neq 0 \Rightarrow |x| \neq 3 \Rightarrow x \neq \pm 3 \Rightarrow D = \mathbb{R} - \{\pm 3\}$

ب) $\sqrt{x} - 3 \neq 0 \Rightarrow \sqrt{x} \neq 3 \Rightarrow x \neq 9$
 $x \geq 0$
 $D = [0, 9) \cup (9, +\infty)$

الف) $2 \cos x - 1 \neq 0 \Rightarrow \cos x \neq \frac{1}{2} \Rightarrow D = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi - \frac{\pi}{3}\}$

ب) $2 \sin x + 1 \neq 0 \Rightarrow \sin x \neq -\frac{1}{2} \Rightarrow D = \mathbb{R} - \{2k\pi - \frac{\pi}{6}, 2k\pi - \frac{5\pi}{6}\}$

ج) $\cot x - 1 \neq 0 \Rightarrow \cot x \neq 1 \Rightarrow D = \mathbb{R} - \{k\pi + \frac{\pi}{4}\}$



د) $\sin^2 x - \frac{1}{4} \neq 0 \Rightarrow \sin^2 x \neq \frac{1}{4} \Rightarrow D = \mathbb{R} - \{k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}\}$



$2|x-2| - \frac{1}{x} > 0 \Rightarrow 2|x-2| > \frac{1}{x} \Rightarrow |x-2| > \frac{1}{2x}$
 $D = (-\infty, \frac{1}{2}) \cup (\frac{1}{2}, +\infty)$

Ⓜ ✓

الف) $4 - 2|x| \geq 0 \Rightarrow 2(2 - |x|) \geq 0 \Rightarrow |x| \leq 2 \Rightarrow D = [-2, 2]$

ب) $\frac{|x|}{|x|} = 1$

Ⓜ ✓

$|x| \neq 0 \Rightarrow x \neq 0 \Rightarrow D = (-\infty, 0) \cup (0, +\infty)$

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