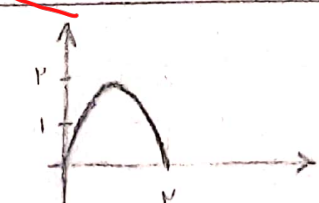
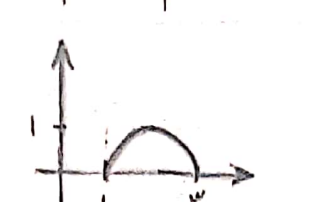
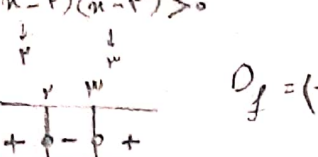
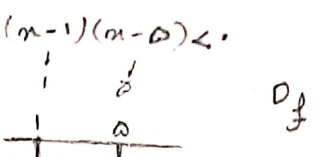
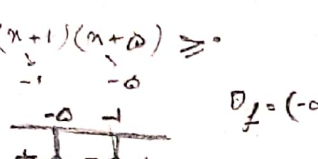
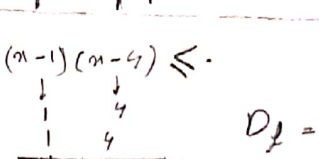
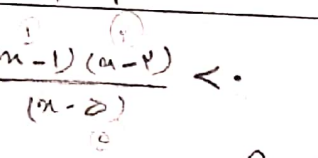
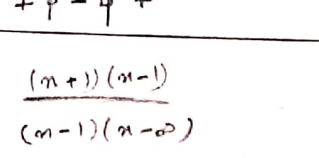
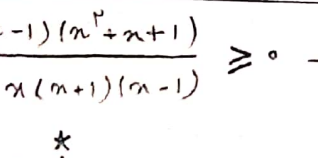
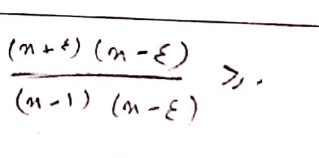


الف)  ب) 	الف) $f(x) + 2$ ب) $2f(x)$	1
ج)  د) 	ج) $-f(x)$ د) $f(x-1)$	2
الف) $(x-2)(x-3) > 0$  $D_f = (-\infty, 2) \cup (3, +\infty)$	ب) $(x-1)(x-5) < 0$  $D_f = (1, 5)$	3
ج) $(x+1)(x+5) \geq 0$  $D_f = (-\infty, -5] \cup [-1, +\infty)$	د) $(x-1)(x-4) \leq 0$  $D_f = [1, 4]$	4
الف) $\frac{(x-1)(x-2)}{(x-3)} < 0$  $D_f = (-\infty, 1) \cup (2, 3)$	ب) $\frac{(x+1)(x-1)}{(x-1)(x-5)}$  $D_f = (-\infty, -1] \cup (5, +\infty)$	5
الف) $\frac{(x-1)(x^2+x+1)}{x(x+1)(x-1)} \geq 0 \rightarrow$  $D_f = (-\infty, -1) \cup (0, +1) \cup (1, +\infty)$	ب) $\frac{(x+4)(x-4)}{(x-1)(x-4)} \geq 0$  $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$	6
الف) $2-x \geq 0 \Rightarrow x \leq 2$ $4-\sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 4$ $2-x \leq 14$ $x \geq -12$ $D_f = [-12, 2]$	ب) $x-2 \geq 0 \Rightarrow x \geq 2$ $2-\sqrt{x-2} \geq 0 \Rightarrow \sqrt{x-2} \leq 2$ $x \geq x-2 \rightarrow 11 \geq x$ $D_f = [2, 11]$	7

$$\begin{aligned} \text{a)} \quad r - r|x|^2 &\neq 0 \\ r|x|^2 &\leq r \\ |x|^2 &\leq 1 \rightarrow -\sqrt{r} \leq x \leq \sqrt{r} \end{aligned}$$

$$D_f = [-\sqrt{r}, \sqrt{r}]$$

Ⓟ ✓

$$\begin{aligned} \text{b)} \quad r|x| - r &\geq 0 \\ r|x| &\geq r \\ |x| &\geq 1 \end{aligned}$$

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

6

$$\begin{aligned} \text{a)} \quad |x| - r &\neq 0 \\ |x| &\neq r \quad x \neq r, -r \end{aligned}$$

$$D_f = \mathbb{R} - \{-r, r\}$$

Ⓟ ✓

$$\begin{aligned} \text{b)} \quad x &\geq 0 \\ \sqrt{x} - r &\neq 0 \Rightarrow x \neq r \end{aligned}$$

$$D_f = [0, +\infty) - \{r\}$$

7

$$\begin{aligned} \text{a)} \quad r \cos x - 1 &\neq 0 \quad r \cos x \neq 1 \\ \cos x &\neq \frac{1}{r} \quad \oplus \end{aligned}$$

$$D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{r}\}$$

Ⓟ ✓

$$\begin{aligned} \text{b)} \quad r \sin x + 1 &\neq 0 \quad r \sin x \neq -1 \\ \sin x &\neq -\frac{1}{r} \quad \oplus \end{aligned}$$

$$D_f = \mathbb{R} - \{k\pi + \frac{11\pi}{2}, k\pi + \frac{3\pi}{2}\}$$

8

$$\begin{aligned} \text{c)} \quad \cot x - 1 &\neq 0 \quad \cot x \neq 1 \rightarrow x \neq k\pi + \frac{\pi}{4} \\ \cos x &\neq 0 \quad \sin x \neq 0 \quad \oplus \quad k\pi + \frac{\pi}{4} \quad \oplus \\ D_f &= \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}\} \quad \frac{k\pi}{r} \end{aligned}$$

$$\begin{aligned} \text{d)} \quad r \sin^2 x - r &\neq 0 \quad r \sin^2 x \neq r \\ \sin^2 x &\neq 1 \quad \sin x = \pm \frac{\sqrt{r}}{r} \end{aligned}$$

$$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$$

$$r|x - r| - \frac{1}{r} > 0$$

$$r|x - r| > \frac{1}{r}$$

$$|x - r| > \frac{1}{r}$$

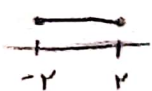
$$\begin{aligned} \left. \begin{aligned} x - r &> \frac{1}{r} \Rightarrow x > r + \frac{1}{r} \\ r - x &> \frac{1}{r} \Rightarrow x < r - \frac{1}{r} \end{aligned} \right\} \Rightarrow D_f = (-\infty, r - \frac{1}{r}) \cup (r + \frac{1}{r}, +\infty) \end{aligned}$$

9

$$\text{a)} \quad r - r|x| \geq 0$$

$$r \geq r|x|$$

$$1 \geq |x|$$



$$D_f = [-1, 1]$$

Ⓟ ✓

$$\begin{aligned} \text{b)} \quad \frac{|x|}{|x|} &\rightarrow |x| \geq 0 \quad |x| = 0 \Rightarrow x = 0 \\ |x| &> 0 \Rightarrow x \neq 0 \end{aligned}$$

$$\Rightarrow D_f = \mathbb{R} - \{0\}$$

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