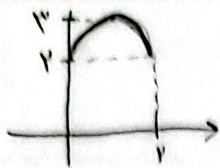
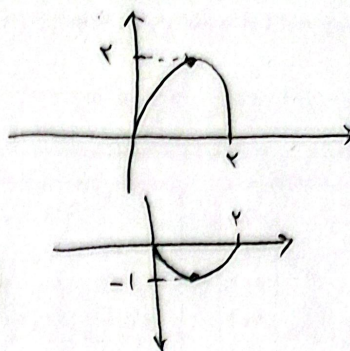


19

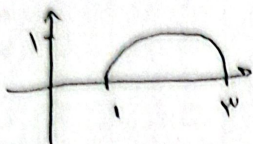


۱)



1

2.)



))

① ✓

(الف) $(x-2)(x-3) \geq 0 \rightarrow 2, 3$
 $\begin{array}{c} 2 \quad 3 \\ + \quad - \quad + \end{array}$ $(-\infty, 2) \cup (3, +\infty)$

$\therefore (x-5)(x-1) \leq 0 \rightarrow \begin{array}{c} 1 \quad 5 \\ + \quad - \quad - \quad + \end{array} \quad (1, 5) \quad \underline{1, 5} \quad \checkmark$

$$2.) (x+1)(x+1) \geq 0 \rightarrow \frac{-1}{+1} \quad \frac{-1}{-1} \quad (-\infty, -1] \cup [-1, +\infty)$$

$$x(x-4)(x-1) \leq 0 \longrightarrow \begin{array}{c} 1 \quad 4 \\ \hline + \quad - \quad + \end{array} \quad [1, 4]$$

الف) $\frac{(x-1)(x-2)}{x-5} \rightarrow 1, 2, 5$ (شبه) $\rightarrow \frac{1}{-5} + \frac{2}{-5} + \frac{5}{-5} +$

$$(-\infty, 1) \cup (1, \infty)$$

① ✓

3

$$\frac{(x-1)(x+1)}{(x-5)(x-1)} \geq 0 \rightarrow 1, -1, 5 \rightarrow \begin{array}{c} -1 \quad 1 \quad 5 \\ + \quad - \quad + \end{array} \rightarrow (-\infty, -1] \cup (5, \infty)$$

الف) $\frac{(x-1)(x^2+x+1)}{x(x-1)(x+1)} \xrightarrow[\text{بالتقسيم]{\text{بالتبسيط}}} \frac{x^2+x+1}{x(x+1)}$ $\frac{-1}{+} \frac{0}{-} \frac{+}{+}$ $\frac{-1}{+} \frac{0}{-} \frac{+}{+}$ $(1, +\infty) \cup (-\infty, -1) \cup (0, 1)$

$$\therefore \frac{(x-1)(x+1)}{(x-1)(x-1)} \geq 0 \rightarrow -1, 1, x^*$$

Q ✓

الف) $y - x \geq 0 \rightarrow y \geq x$

$$\xi - \sqrt{2x} \geq 0 \rightarrow \xi \geq \sqrt{2x} \xrightarrow{\text{两边平方}} 19 \geq 2x \xrightarrow{\div 2} 19 \geq x \rightarrow x \geq -19$$

$$y \geq x \geq -15$$

$$\text{ii) } x-2 \geq 0 \rightarrow x \geq 2$$

Q ✓

$$11 \geq x \geq 4$$

△

$$w - \sqrt{x-y} \geq 0 \rightarrow w \geq \sqrt{x-y} \xrightarrow{y \geq 0} w \geq \sqrt{x} \rightarrow w \geq \sqrt{x} \rightarrow w \geq \sqrt{x} \rightarrow w \geq \sqrt{x}$$

الف) $\sqrt{x^2 - 2x} \geq 0 \rightarrow x \geq 2x^2 \rightarrow x \geq x^2$

ب) ✓

$$\frac{-\sqrt{2} \quad \sqrt{2}}{-1 \quad + \quad 1}$$

$Df = [-\sqrt{2}, \sqrt{2}]$

6

ب) $3|x| - 9 \geq 0 \rightarrow 3|x| \geq 9$
 $|x| \geq 3 \rightarrow \begin{cases} x \leq -3 \\ x \geq 3 \end{cases}$ (مقتضى)

الف) $\frac{|x+1|}{|x-3|} \rightarrow |x-3| \neq 0 \quad |x| \neq 3 \quad \begin{matrix} x=3 \\ x=-3 \end{matrix}$
 $Df = \mathbb{R} - \{3, -3\}$

7

ب) $\frac{5x+1}{\sqrt{x-2}} \rightarrow \sqrt{x-2} \neq 0$
 $\sqrt{x} \neq 2 \rightarrow x \neq 4$
 $Df = \mathbb{R} - \{4\}$

الف) $2(\cos x - 1) \neq 0 \quad 2\cos x \neq 1 \quad \cos x \neq \frac{1}{2}$
 $Df = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$

ب) $2\sin x + 1 \neq 0 \quad 2\sin x \neq -1 \quad \sin x \neq -\frac{1}{2}$
 $Df = \mathbb{R} - \{2k\pi + \frac{7\pi}{6} \pm \frac{5\pi}{6}\}$

ج) $\cot x \neq 1 \neq 0 \quad \cot x \neq 1$
 $Df = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}\}$

د) $\begin{cases} \sin^2 x - \frac{1}{2} \neq 0 \\ \sin^2 x \neq \frac{1}{2} \end{cases} \rightarrow \sin x \neq \pm \frac{\sqrt{2}}{2}$
 $Df = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$

$2|x-2| - \frac{1}{x} > 0$
 $2|x-2| > \frac{1}{x}$
 $|x-2| > \frac{1}{2x} \rightarrow \begin{cases} x-2 > \frac{1}{2x} \rightarrow x > \frac{1}{x} \\ -\frac{1}{2x} > x-2 \rightarrow \frac{1}{x} > x \end{cases} \rightarrow Df = (\frac{1}{x}, +\infty) \cup (-\infty, \frac{1}{x})$

ب) ✓

9

الف) $x - 2|x| \geq 0$
 $x \geq 2|x| \rightarrow \begin{cases} x \geq 2x \\ x \geq -2x \end{cases} \rightarrow x \geq x \geq -2x$

ب) $\sqrt{\frac{|x|}{|x|}} \quad |x| \neq 0$
 $Df = \mathbb{R} - \{0\}$

ب) ✓

10