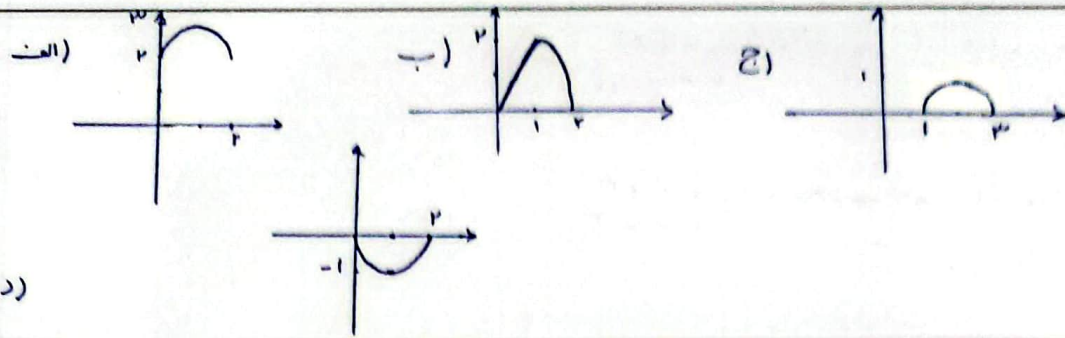




الف) $(x-2)(x-3) > 0$ $\begin{array}{c} -\infty \quad 2 \quad 3 \quad +\infty \\ + \quad - \quad + \end{array}$ $(-\infty, 2) \cup (3, +\infty)$

ب) $(x-1)(x-4) < 0$ $\begin{array}{c} -\infty \quad 1 \quad 4 \quad +\infty \\ + \quad - \quad + \end{array}$ $(1, 4)$

ج) $(x+1)(x+5) > 0$ $\begin{array}{c} -\infty \quad -5 \quad -1 \quad +\infty \\ + \quad - \quad + \end{array}$ $(-\infty, -5] \cup [-1, +\infty)$

الف) $\frac{(x-1)(x-2)}{x-5} < 0$ $\begin{array}{c} -\infty \quad 1 \quad 2 \quad 5 \quad +\infty \\ - \quad + \quad - \quad + \end{array}$ $(-\infty, 1) \cup (2, 5)$

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

الف) $\frac{(x-1)(x^2+x+1)}{x(x-1)(x+1)} \geq 0$ $\begin{array}{c} -\infty \quad -1 \quad 0 \quad 1 \quad +\infty \\ + \quad - \quad + \quad + \end{array}$ $(-\infty, -1) \cup (0, +\infty) - \{1\}$

ب) $\frac{(x-4)(x+4)}{(x-4)(x-1)} \geq 0$ $\begin{array}{c} -\infty \quad -4 \quad 1 \quad 4 \quad +\infty \\ + \quad - \quad + \quad + \end{array}$ $(-\infty, -4] \cup (1, +\infty) - \{4\}$

الف) $2-x \geq 0 \rightarrow x \leq 2$ $4-\sqrt{2-x} \geq 0 \rightarrow \sqrt{2-x} \leq 4 \rightarrow 2-x \leq 14 \rightarrow x \geq -12$
 $Df = [-12, 2]$

ب) $x-2 \geq 0 \rightarrow x \geq 2$ $3-\sqrt{x-2} \geq 0 \rightarrow \sqrt{x-2} \leq 3 \rightarrow x-2 \leq 9 \rightarrow x \leq 11$
 $Df = [2, 11]$

أ) $r - rx^r > 0 \rightarrow rx^r < r \rightarrow x^r < 1 \rightarrow \begin{cases} x < \sqrt[r]{r} \\ x > -\sqrt[r]{r} \end{cases}$ $D_f = [-\sqrt[r]{r}, \sqrt[r]{r}]$ ب) $r x - a > 0 \rightarrow r x > a \rightarrow x > \frac{a}{r} \rightarrow \begin{cases} x > \frac{a}{r} \\ x < -\frac{a}{r} \end{cases}$ $D_f = (-\infty, -\frac{a}{r}] \cup [\frac{a}{r}, +\infty)$	٤
أ) $x - r \neq 0 \rightarrow x \neq r \rightarrow x \neq \pm r \quad D_f = \mathbb{R} - \{\pm r\}$ ب) $\sqrt{x} - r \neq 0 \rightarrow \sqrt{x} \neq r \rightarrow x \neq r^2$ $x \geq 0$ $D_f = [0, +\infty) - \{r^2\}$	٧
أ) $r \cos x \neq 1 \rightarrow \cos x \neq \frac{1}{r} \quad D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{r}\}$ ب) $r \sin x \neq -1 \rightarrow \sin x \neq -\frac{1}{r} \quad D_f = \mathbb{R} - \{2k\pi - \frac{\pi}{r}, 2k\pi + \frac{\pi}{r}\}$ ج) $\cos x \neq 0, \sin x \neq 0, \cot x \neq 1 \quad D_f = \mathbb{R} - \{\frac{k\pi}{r}, k\pi + \frac{\pi}{r}\}$ د) $\sin^r x \neq \frac{r}{r} \rightarrow \sin x \neq \pm \frac{\sqrt[r]{r}}{r} \quad D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{r}\}$	٨
$r x-r - \frac{1}{r} > 0 \rightarrow x-r > \frac{1}{r} \rightarrow \begin{cases} x-r > \frac{1}{r} \rightarrow x > \frac{a}{r} \\ x-r < -\frac{1}{r} \rightarrow x < \frac{a}{r} \end{cases}$ $D_f = (-\infty, \frac{a}{r}) \cup (\frac{a}{r}, +\infty)$	٩
$r - r x > 0 \rightarrow x < 1 \rightarrow \begin{cases} x < 1 \\ x > -1 \end{cases} \quad D_f = [-1, 1]$ $\sqrt{\frac{ x }{ x }} \rightarrow x > 0 \rightsquigarrow x \neq 0 \quad D_f = \mathbb{R} - \{0\}$	١٠