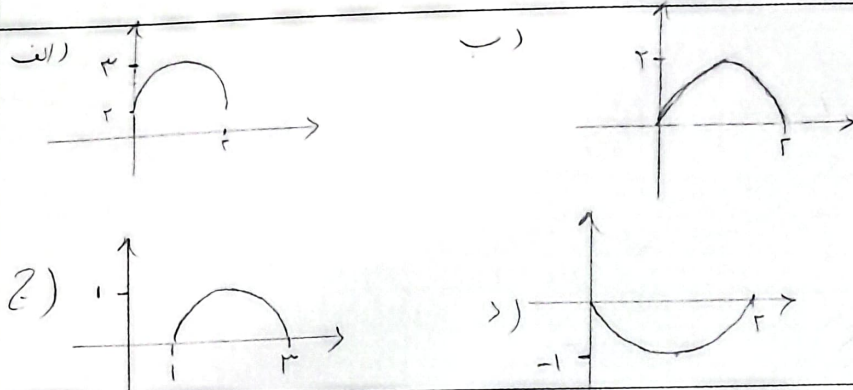




الف) $x^2 - 4x + 4 > 0$ $(x-2)(x-2) > 0$ $\frac{+}{-} \frac{2}{0} - \frac{2}{0} \frac{+}{+}$
 $P_f = (-\infty, 2) \cup (2, +\infty)$

ب) $x^2 - 4x + 4 < 0$ $(x-2)(x-2) < 0$ $\frac{+}{-} \frac{2}{0} - \frac{2}{0} \frac{+}{+}$
 $P_f = (2, 2)$

ج) $(x+1)(x-4) > 0$ $\frac{-}{+} \frac{0}{-1} - \frac{4}{0} \frac{+}{+}$
 $P_f = (-\infty, -1] \cup [4, +\infty)$

د) $(x-2)(x-1) < 0$ $P_f = [1, 2]$ $\frac{+}{-} \frac{1}{0} - \frac{2}{0} \frac{+}{+}$

الف) $\frac{(x-2)(x-1)}{x-2} < 0$ $\frac{1}{-} \frac{2}{0} - \frac{1}{0} \frac{+}{+}$ $P_f = (-\infty, 1) \cup (2, 4)$

ب) $\frac{(x-1)(x+1)}{(x-2)(x-1)} > 0$ $\frac{-}{+} \frac{1}{0} \frac{+}{-1} \frac{+}{0} \frac{+}{+}$ $P_f = (-\infty, -1] \cup (2, +\infty)$

الف) $\frac{x^2-1}{x^2-x} \geq 0 \Rightarrow \frac{(x-1)(x+1)}{x(x-1)(x+1)} \geq 0$ $\frac{-}{+} \frac{1}{0} \frac{+}{-1} \frac{+}{0} \frac{+}{+}$
 $P_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$

ب) $\frac{(x-2)(x+2)}{(x-2)(x-1)} \geq 0$ $\frac{-}{+} \frac{2}{0} \frac{+}{-2} \frac{+}{0} \frac{+}{+}$
 $P_f = (-\infty, -2] \cup (1, 2) \cup (2, +\infty)$

الف) $\begin{cases} 4-x > 0 \Rightarrow x < 4 \\ 4-\sqrt{4-x} > 0 \Rightarrow \sqrt{4-x} < 4 \Rightarrow 4-x < 16 \Rightarrow x > -12 \end{cases} P_f = [-12, 4]$

ب) $\begin{cases} x-2 > 0 \Rightarrow x > 2 \\ 4-\sqrt{x-2} > 0 \Rightarrow \sqrt{x-2} < 4 \Rightarrow x-2 < 16 \Rightarrow x < 18 \end{cases} P_f = [2, 18]$

الف) $\varepsilon - 2n^2 > 0 \Rightarrow 2n^2 < \varepsilon \Rightarrow n^2 < \frac{\varepsilon}{2}$ $n \in (-\sqrt{\frac{\varepsilon}{2}}, \sqrt{\frac{\varepsilon}{2}})$ $P_f = [-\sqrt{\frac{\varepsilon}{2}}, \sqrt{\frac{\varepsilon}{2}}]$	6
ب) $\varepsilon n - 9 > 0 \Rightarrow \varepsilon n > 9 \Rightarrow n > \frac{9}{\varepsilon}$ $n > \frac{9}{\varepsilon}$ $n < -\frac{9}{\varepsilon}$ $(-\infty, -\frac{9}{\varepsilon}) \cup (\frac{9}{\varepsilon}, +\infty)$	7
الف) $n - 4 \neq 0 \Rightarrow n \neq 4 \Rightarrow n \neq \pm 4 \Rightarrow P_f = \mathbb{R} - \{\pm 4\}$ ب) $\sqrt{n} - 5 \neq 0 \Rightarrow \sqrt{n} \neq 5 \Rightarrow n \neq 25 \Rightarrow P_f = \mathbb{R} - \{25\}$	8
الف) $2\cos n - 1 \neq 0 \Rightarrow \cos n \neq \frac{1}{2} \Rightarrow P_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$ ب) $2\sin n + 1 \neq 0 \Rightarrow \sin n \neq -\frac{1}{2} \Rightarrow P_f = \mathbb{R} - \{\frac{\sqrt{3}\pi}{4} + 2k\pi, \frac{11\pi}{4} + 2k\pi\}$ ج) $\begin{cases} \sin n \neq 0 \\ \cos n \neq 0 \end{cases} \Rightarrow P_f = \mathbb{R} - \{k\pi, \frac{\pi}{2} + k\pi, \frac{3\pi}{2} + k\pi\}$ $(\cot n - 1 \neq 0 \Rightarrow \cot n \neq 1)$ د) $\varepsilon \sin^2 n - 4 \neq 0 \Rightarrow \sin^2 n \neq \frac{4}{\varepsilon} \Rightarrow \sin n \neq \pm \frac{2}{\sqrt{\varepsilon}} \Rightarrow P_f = \mathbb{R} - \{\frac{\pi}{\sqrt{\varepsilon}} + k\pi, \frac{3\pi}{\sqrt{\varepsilon}} + k\pi\}$	9
$2 n-2 - \frac{1}{\varepsilon} > 0 \Rightarrow 2 n-2 > \frac{1}{\varepsilon} \Rightarrow n-2 > \frac{1}{2\varepsilon}$ $n-2 < -\frac{1}{2\varepsilon} \Rightarrow n < \frac{4\varepsilon-1}{2\varepsilon}$ $n-2 > \frac{1}{2\varepsilon} \Rightarrow n > \frac{4\varepsilon+1}{2\varepsilon}$ $\Rightarrow P_f = (-\infty, \frac{4\varepsilon-1}{2\varepsilon}) \cup (\frac{4\varepsilon+1}{2\varepsilon}, +\infty)$	10
الف) $\varepsilon - 2 n > 0 \Rightarrow 2 n < \varepsilon \Rightarrow n < \frac{\varepsilon}{2} \Rightarrow P_f = [-\frac{\varepsilon}{2}, \frac{\varepsilon}{2}]$ ب) $n \neq 0 \Rightarrow n \neq 0 \Rightarrow P_f = (-\infty, 0) \cup (0, +\infty)$	11