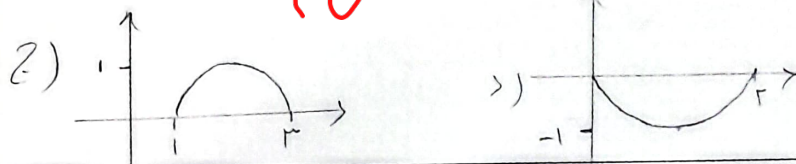


19,5



پ) ✓



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

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

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

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

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

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

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

ب) $\frac{(x-4)(x+4)}{(x-4)(x-1)} \geq 0$ $\frac{-}{+} \frac{+}{-} \frac{+}{-}$
 $P_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$ پ) ✓

الف) $\begin{cases} x-2 > 0 \Rightarrow x > 2 \\ x-\sqrt{x-2} > 0 \Rightarrow \sqrt{x-2} < x \Rightarrow x-2 < x^2 \Rightarrow x > -1 \end{cases} P_f = [2, +\infty)$

ب) $\begin{cases} x-2 > 0 \Rightarrow x > 2 \\ x-\sqrt{x-2} > 0 \Rightarrow \sqrt{x-2} < x \Rightarrow x-2 < x^2 \Rightarrow x < 11 \end{cases} P_f = [2, 11]$ پ) ✓

الف) $\varepsilon - 2n^2 > 0 \Rightarrow 2n^2 < \varepsilon \Rightarrow n^2 < \frac{\varepsilon}{2} \Rightarrow n \in (-\sqrt{\frac{\varepsilon}{2}}, \sqrt{\frac{\varepsilon}{2}})$
 $P_f = [-\sqrt{\frac{\varepsilon}{2}}, \sqrt{\frac{\varepsilon}{2}}]$

ب) $3|n| - 9 > 0 \Rightarrow 3|n| > 9 \Rightarrow |n| > 3 \Rightarrow n > 3 \vee n < -3$
 $P_f = (-\infty, -3) \cup (3, +\infty)$

الف) $|n| - 4 \neq 0 \Rightarrow |n| \neq 4 \Rightarrow n \neq \pm 4 \Rightarrow P_f = \mathbb{R} - \{\pm 4\}$

ب) $\sqrt{n} - 5 \neq 0 \Rightarrow \sqrt{n} \neq 5 \Rightarrow n \neq 25 \Rightarrow P_f = \mathbb{R} - \{25\}$
 $\leftarrow n \geq 0$
 $[0, +\infty)$

لا يمكن ما بعد حذف

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) $2 \sin n + 1 \neq 0 \Rightarrow \sin n \neq -\frac{1}{2} \Rightarrow P_f = \mathbb{R} - \{\frac{7\pi}{6} + 2k\pi, \frac{11\pi}{6} + 2k\pi\}$
 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) $\varepsilon \sin^2 n - 4 \neq 0 \Rightarrow \sin^2 n \neq \frac{4}{\varepsilon} \Rightarrow \sin n \neq \pm \frac{2}{\sqrt{\varepsilon}} \Rightarrow P_f = \mathbb{R} - \{\frac{\pi}{6} + k\pi, \frac{5\pi}{6} + k\pi, \frac{7\pi}{6} + k\pi, \frac{11\pi}{6} + k\pi\}$

$2|n-2| - \frac{1}{\varepsilon} > 0 \Rightarrow 2|n-2| > \frac{1}{\varepsilon} \Rightarrow |n-2| > \frac{1}{2\varepsilon}$

$n-2 < -\frac{1}{2\varepsilon} \Rightarrow n < 2 - \frac{1}{2\varepsilon}$
 $n-2 > \frac{1}{2\varepsilon} \Rightarrow n > 2 + \frac{1}{2\varepsilon}$
 $P_f = (-\infty, 2 - \frac{1}{2\varepsilon}) \cup (2 + \frac{1}{2\varepsilon}, +\infty)$

الف) $\varepsilon - 2|n| > 0 \Rightarrow 2|n| < \varepsilon \Rightarrow |n| < \frac{\varepsilon}{2} \Rightarrow P_f = [-\frac{\varepsilon}{2}, \frac{\varepsilon}{2}]$

ب) $|n| \neq 0 \Rightarrow n \neq 0 \Rightarrow P_f = (-\infty, 0) \cup (0, +\infty)$