

برای x بخش نذر $\Rightarrow$ جمع ضرایب $= 0$ (الف)
 $4x^3 - 20x^2 + 24x - 12 = 0$
 $\hookrightarrow \div (x-1) = 4x^2 - 14x + 12 \rightarrow x^2 - 14x + 40 = (x-4)(x-10)$
 $\Rightarrow Df = \mathbb{R} - \left\{1, \frac{5}{2}, \frac{5}{4}\right\}$ (ب)
 $\Rightarrow$ جمع ضرایب زوج $=$ جمع ضرایب فرد $\rightarrow$ برای x بخش نذر $\Rightarrow (3x^3 - x^2 - 8x - 4) = 0 \rightarrow \div (x+1) =$
 $3x^2 - 4x - 12 = 0 \Rightarrow (x-4)(x+3) \rightarrow$ ضرایب: $3, -4, -12$
 $\Rightarrow Df = \mathbb{R} - \left\{-1, -\frac{2}{3}, 2\right\}$

(الف) $3-2x \geq 0$ $2x \leq 3$ $x \leq \frac{3}{2}$ $x - \sqrt{3-2x} \neq 0$ $x \neq \sqrt{3-2x}$
 $x^2 \neq 3-2x$ $x^2 + 2x - 3 \neq 0 \rightarrow (x+3)(x-1)$ $Df = (-\infty, \frac{3}{2}] - \{1\}$
 (ب) $3x - 2 \geq 0$ $3x \geq 2$ $x \geq \frac{2}{3}$ $x^2 \neq 3x - 2$ $(x-1)(x-2)$
 $Df = [\frac{2}{3}, +\infty) - \{1, 2\}$

(الف) $2\cos x - 1 \neq 0$ $\cos x \neq \frac{1}{2}$ $Df = \mathbb{R} - \left\{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\right\}$
 (ب) $2\sin x + 1 \neq 0$ $\sin x \neq -\frac{1}{2}$ $Df = \mathbb{R} - \left\{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\right\}$
 (ج) $\tan x$ تعریف شده $\rightarrow k\pi + \frac{\pi}{2}$ $\cot x - 1 \neq 0$
 $\cot x$ تعریف شده $\rightarrow k\pi$ $\cot x \neq 1 \rightarrow k\pi + \frac{\pi}{4}$ $Df = \mathbb{R} - \left\{k\pi + \frac{\pi}{4}, k\pi, k\pi + \frac{\pi}{2}\right\}$
 (د) $2\sin^2 x \neq 3$ $\sin^2 x \neq \frac{3}{2}$ $\sin x \neq \pm \sqrt{\frac{3}{2}}$ $\rightarrow k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4}, k\pi + \frac{5\pi}{4}, k\pi + \frac{7\pi}{4}$ $Df = \mathbb{R} - \left\{2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4}, 2k\pi + \frac{5\pi}{4}, 2k\pi + \frac{7\pi}{4}\right\}$

(الف) $(x-2)(x-3) > 0$ $\frac{2}{+} \frac{3}{-}$ $(-\infty, 2) \cup (3, +\infty)$
 (ب) $(x-1)(x-5) < 0$ $\frac{1}{+} \frac{5}{-}$ $(1, 5)$
 (ج) $(x+1)(x+5) \geq 0$ $\frac{-5}{+} \frac{-1}{-}$ $(-\infty, -5] \cup [-1, +\infty)$
 (د) $(x-1)(x-4) \leq 0$ $\frac{1}{+} \frac{4}{-}$ $[1, 4]$

$\frac{(x-1)(x-2)}{(x-5)} < 0$ $\frac{-1}{+} \frac{2}{-} \frac{5}{+}$ $(-\infty, 1) \cup (2, 5)$

$\frac{(x+1)(x-1)}{(x-1)(x-5)} \geq 0$ $\frac{-1}{+} \frac{1}{-} \frac{5}{+}$ $(-\infty, -1] \cup (5, +\infty)$

$$\text{الف) } \frac{(x-1)(x-3)}{(x^2-1)} \geq 0 \quad \frac{-1}{0} \frac{3}{+} \quad Df = [3, +\infty)$$

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$$\text{ب) } x^2 - 1 \neq 0 \quad (x-1)(x+1) \neq 0$$

$$Df = \mathbb{R} - \{-1, 1\}$$

$$\text{الف) } x^2 - 3x > 0 \quad x(x-3) > 0 \quad \frac{0}{+} \frac{3}{-} \quad Df = (-\infty, 0) \cup (3, +\infty)$$

$$\text{ب) } 14 - x^2 > 0 \quad (4-x)(4+x) > 0 \quad \frac{-4}{-} \frac{4}{+} \quad Df = (-4, -2) \cup (2, 4) - \{-2, 2\}$$

$$|x| - 2 > 0 \quad |x| > 2 \quad x > 2 \quad \text{ج) } \frac{(x-2)(x-4)}{x-2} > 0 \quad \frac{2}{-} \frac{4}{+}$$

$$|x| - 2 \neq 1 \quad |x| \neq 3 \quad x < -2 \quad x \neq \pm 3 \quad 10 - x > 0 \quad x < 10 \quad 10 - x \neq 1 \quad x \neq 9$$

$$> (x-5)(x-4) \geq 0 \quad 34 - x^2 > 0 \quad \frac{4}{+} \frac{5}{-} \quad Df = (4, 10) - \{9\}$$

$$\frac{-4}{-} \frac{4}{+} \quad x > 0 \quad x \neq 1 \quad Df = (0, 4) - \{1\}$$

$$y = \frac{x^2 - x}{x^2 + x} \quad x^2 = x \rightarrow 1, 0 \quad x^2 = -x \rightarrow -1, 0$$

$$\frac{-1}{0} \frac{0}{0} \frac{1}{+}$$

	-1	0	1
$x^2 - x$	+	+	-
$x^2 + x$	+	-	+
$f(x)$	+	-	+

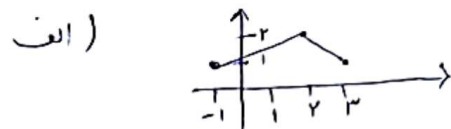
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$$y = \sqrt{\frac{x - f(x)}{f(x)}} \quad \frac{f(x) \neq 0}{f(x) > 0} \quad \frac{x - f(x)}{f(x)} \geq 0 \quad x = f(x) \rightarrow -1, 3$$

$$\frac{-2}{-} \frac{-1}{0} \frac{2}{+} \frac{3}{+}$$

$$Df = (-2, -1] \cup (2, 3]$$

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