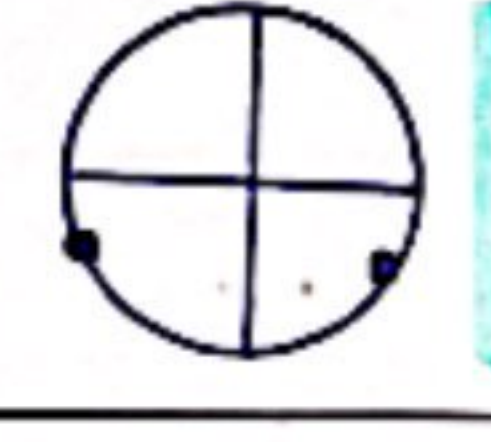
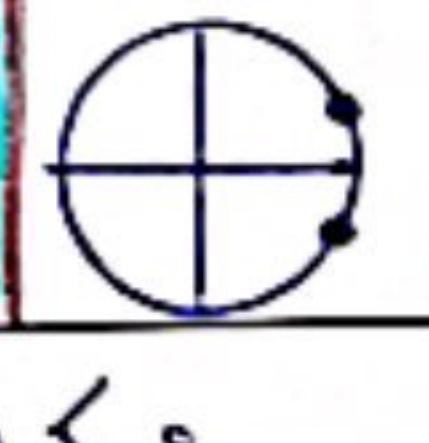


نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ۴ ... کلاس دوم ریاضی

الف) $\frac{x^3 - 10x^2 + 11x - 15}{-x^3 + x^2}$ $\begin{array}{r} x^3 - 10x^2 + 11x - 15 \\ -x^3 + x^2 \\ \hline -14x^2 + 11x - 15 \\ +14x^2 - 14x \\ \hline 15x - 15 \\ -15x + 15 \\ \hline 0 \end{array}$ $\frac{x^3 - 14x^2 + 15x}{(x-1)(x-3)(x-5)}$ $\Rightarrow D_f = R - \left\{1, \frac{3}{5}, \frac{5}{3}\right\}$	ب) $\frac{x^3 - 10x^2 + 11x - 15}{-x^3 + x^2}$ $\begin{array}{r} x^3 - 10x^2 + 11x - 15 \\ -x^3 + x^2 \\ \hline -14x^2 + 11x - 15 \\ +14x^2 - 14x \\ \hline 15x - 15 \\ -15x + 15 \\ \hline 0 \end{array}$ $\frac{x^3 - 14x^2 + 15x}{(x-1)(x-3)(x-5)}$ $\Rightarrow D_f = \left\{-1, 3, \frac{5}{3}\right\}$
الف) $\begin{cases} x - \sqrt{3-2x} \neq 0 \rightarrow x \neq \sqrt{3-2x} \rightarrow x^2 \neq 3-2x \rightarrow x^2 + 2x - 3 \neq 0 \\ (x+3)(x-1) \neq 0 \rightarrow x \neq -3, 1 \\ 3-2x \geq 0 \rightarrow 3 \geq 2x \rightarrow \frac{3}{2} \geq x \end{cases}$ $\Rightarrow D_f = R - (-\infty, \frac{3}{2}] - \{-3, 1\}$ ب) $\begin{cases} x - \sqrt{3x-2} \neq 0 \rightarrow x \neq \sqrt{3x-2} \rightarrow x^2 \neq 3x-2 \rightarrow x^2 - 3x + 2 \neq 0 \\ (x-1)(x-2) \neq 0 \rightarrow x \neq 1, 2 \\ 3x-2 \geq 0 \rightarrow 3x \geq 2 \rightarrow x \geq \frac{2}{3} \end{cases}$ $\Rightarrow D_f = R - [\frac{2}{3}, +\infty) - \{1, 2\}$	۲
الف) $\cos x - 1 \neq 0$ $\cos x \neq \frac{1}{2} \rightarrow$  $\Rightarrow D_f = R - \left\{2k\pi + \frac{\pi}{3}, 2k\pi - \frac{\pi}{3}\right\}$ ب) $\sin x + 1 \neq 0$ $\sin x \neq -1$  $D_f = R - \left\{2k\pi - \frac{3\pi}{2}, 2k\pi - \frac{\pi}{2}\right\}$	ج) $\cos x \neq 0$ $\sin x \neq 0$ $\cot x - 1 \neq 0 \rightarrow \cot x \neq 1$  $D_f = R - \left\{k\pi, k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4}\right\}$ د) $\sin^2 x \neq \frac{1}{4} \rightarrow \sin x \neq \pm \frac{1}{2}$  $D_f = R - \left\{2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}, 2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\right\}$ ۳
الف) $x^2 - 5x + 4 > 0$ $(x-2)(x-4) > 0$ $D_f = (-\infty, 2) \cup (4, +\infty)$ ج) $x^2 + 4x + 5 \geq 0$ $(x+1)(x+5) \geq 0$ $D_f = (-\infty, -5] \cup [-1, +\infty)$	ب) $x^2 - 4x + 5 < 0$ $(x-1)(x-5) < 0$ $D_f = (1, 5)$ د) $x^2 - 7x + 4 < 0$ $(x-1)(x-4) < 0$ $D_f = [1, 4]$ ۴
الف) $\frac{x^2 - 3x + 2}{x-5} < 0$ $x \neq 5$ $D_f = (-\infty, 1) \cup (2, 5)$	ب) $\frac{(x+1)(x-1)}{(x-1)(x-5)} \geq 0$ $x \neq 1, 5$ $D_f = (-\infty, -1] \cup (5, +\infty)$ ۵

الف)

$$\frac{x^3 - 4x + 3}{x^3 - 1} \geq 0 \rightarrow \frac{(x-1)(x-1)(x+1)}{(x-1)(x^2+x+1)}$$

$$\Delta = 1 - 4 = -3 < 0$$

پس اشیاء ندارد.

$$D_f = [1, +\infty)$$

ب)

چون فرجه فرد است پس فقط معراج $\neq$

$$x^3 - 1 \neq 0$$

$$(x+1)(x-1) \neq 0 \rightarrow x \neq -1$$

$$x \neq 1$$

$$\rightarrow D_f = \mathbb{R} - \{-1, 1\}$$

الف) $x^2 - 3x > 0$

$$x(x-3) > 0$$

$$D_f = (-\infty, 0] \cup [3, +\infty)$$

ج) $\frac{(x-1)(x-3)}{x-2} > 0 \rightarrow \frac{x^2 - 4x + 3}{x-2}$

$$1 - x > 0 \rightarrow 1 > x$$

$$1 - x \neq 1 \rightarrow x \neq 0$$

$$D_f = (0, 1) - \{2\}$$

ب) $|4 - x^2| > 0 \rightarrow x^2 < 4 \rightarrow -2 < x < 2$

$$|x - 2| > 0 \rightarrow |x| > 2 \rightarrow x > 2$$

$$|x - 2| \neq 1 \rightarrow |x| \neq 3 \rightarrow x \neq -3, 3$$

$$\rightarrow D_f = ((-2, 2) \cup (3, \infty)) - \{-3, 3\}$$

$$x^2 - 11x + 28 > 0 \rightarrow (x-4)(x-7) > 0$$

$$x > 0$$

$$x \neq 1$$

$$14 - x^2 = -(x-4)(x+4) > 0$$

$$\rightarrow [0, 4] - \{1\}$$

نوشته ایاری

	-1	0	1
$x(x-1)$	+	+	+
$x(x+1)$	+	-	+
$p(x)$	+	-	+

نوشته ایاری $\rightarrow \frac{x(x-1)}{x(x+1)}$

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

$$x - f(x) = 0$$

$$x = f(x) \rightarrow x = 3, -1$$

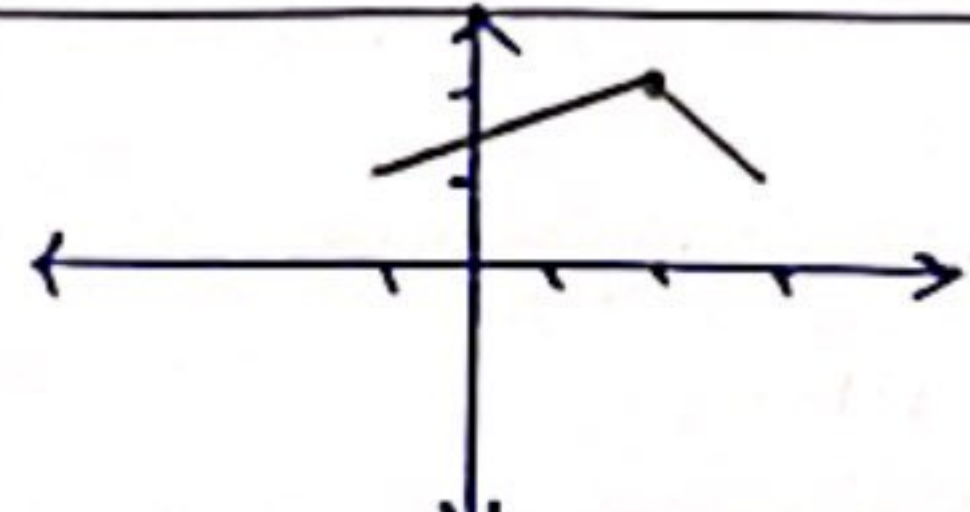
$$f(x) = 0 \rightarrow x = 2, -2$$

	-2	-1	2	3
$x - f(x)$	-	-	+	+
$f(x)$	+	-	-	+
$p(x)$	-	+	-	+

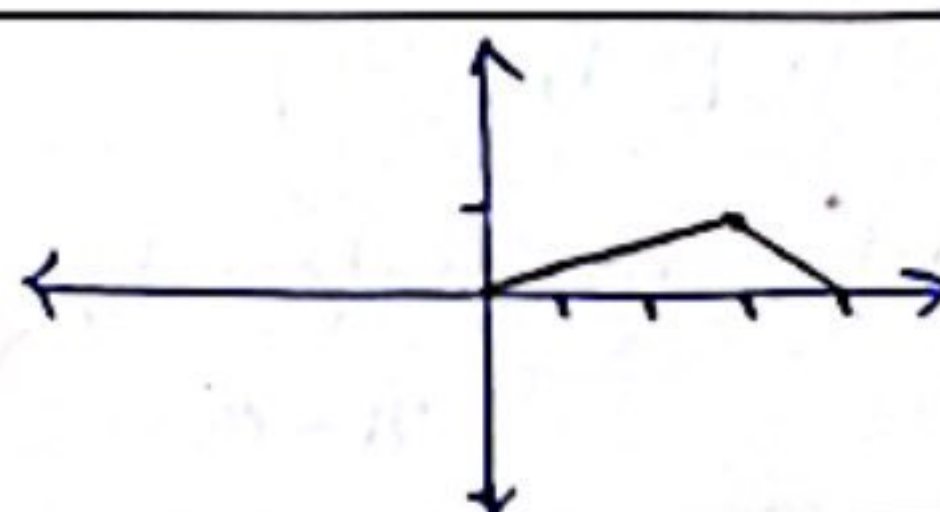
چون در اشیاء است پس x را انقباض می‌کنیم

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

الف)



ب)



ج)

