

الف) $\frac{x+4}{6x^3-2x^2+3x-12} = 0$ جميع ضارب = 0 $\Rightarrow D_f = \mathbb{R} - \{1, 5, 2, 5\} - 1$

ب) $\frac{x+3}{3x^3-x^2-11x-6} = 0$ ضارب فرد = ضارب زوج $\Rightarrow \frac{x+3}{(x+1)(3x^2-4x-6)} \Rightarrow x = \frac{4}{3} = 2$
 $D_f = \mathbb{R} - \{-1, -\frac{4}{3}, 2\}$
 $x - 4x - 12 = 0 \Rightarrow (x-4)(x+3) = 0$
 $\Rightarrow x = \frac{4}{3} = 2$
 $x = -\frac{4}{3}$

الـ) $\frac{x+1}{x-\sqrt{3-2x}} = 0$

ب) $\frac{x+2}{x-\sqrt{3x-2}} = 0$

$x - \sqrt{3-2x} = 0$

$x = \sqrt{3x-2}$

$x = \sqrt{3-2x}$

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

$x^2 = 3x-2$

$D_f = \mathbb{R} - \{1, 2\}$

$x^2 = 3-2x$

$x^2 - 3x + 2 = 0$

$x^2 + 2x - 3 = 0$

جوابه

$(x-2)(x-1) \neq 0$

$(x+3)(x-1) = 0 \Rightarrow x = -3, x = 1$

$x \neq 2$

$x \neq 1$

الـ) $y = \frac{\sin x}{r \cos x - 1}$

$r \cos x \neq 1$
 $\cos x \neq \frac{1}{r}$
 $D_f = \mathbb{R} - \{rkx + \frac{x}{r}, rkx + \frac{rx}{r}\}$

ب) $y = \frac{\cos x + 1}{r \sin x + 1}$

$r \sin x \neq -1$
 $\sin x \neq -\frac{1}{r}$

$D_f = \mathbb{R} - \{rkx + \frac{\omega x}{r}, rkx + \frac{vx}{r}\}$

ج) $y = \frac{\tan x + r}{\cot x - 1}$

$\cot x \neq 1$

$\frac{\cos x}{\sin x} \neq 1$

$D_f = \mathbb{R} - \{lkx, lkx + \frac{x}{r}\}$

د) $y = \frac{\sin x + 1}{f \sin^2 x - r}$

$f \sin^2 x \neq r$
 $\sin^2 x \neq \frac{r}{f}$

$\sin x \neq \pm \frac{\sqrt{r}}{f}$

$D_f = \mathbb{R} - \{lkx + \frac{x}{r}, lkx + \frac{rx}{r}\}$

$$\text{الف) } x^2 - 2x + 4 > 0$$

$$(x-2)(x-2) > 0$$

$$\begin{array}{c} | \quad | \\ + \quad 2 \quad - \quad 2 \quad + \end{array}$$

$$(-\infty, 2) \cup (2, +\infty)$$

$$\text{ب) } x^2 - 4x + 5 < 0 \rightarrow (x-1)(x-5) < 0$$

$$\begin{array}{c} | \quad | \\ + \quad 1 \quad - \quad 5 \quad + \end{array}$$

$$(1, 5)$$

$$\text{ج) } x^2 + 4x + 5 \geq 0$$

$$(x+1)(x+5) \geq 0$$

$$\begin{array}{c} | \quad | \\ + \quad -1 \quad - \quad -5 \quad + \end{array}$$

$$(-\infty, -5] \cup [-1, +\infty)$$

$$\text{د) } x^2 - 5x + 4 \leq 0 \quad (x-1)(x-4) \leq 0$$

$$\begin{array}{c} | \quad | \\ + \quad 1 \quad - \quad 4 \quad + \end{array}$$

$$D_f = [1, 4]$$

$$\text{هـ) } \frac{x^2 - 3x + 2}{x-5} < 0$$

$$\frac{(x-1)(x-2)}{x-5} < 0$$

$$-5$$

$$\begin{array}{c} | \quad | \quad | \\ - \quad 1 \quad + \quad 2 \quad - \quad 5 \quad + \end{array}$$

$$D_f = (-\infty, 1) \cup (2, 5)$$

$$x < 1, 2 < x < 5$$

$$\text{و) } \frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$$

$$\frac{(x+1)(x-1)}{(x-1)(x-5)} \geq 0$$

$$\begin{array}{c} | \quad | \quad | \quad | \\ + \quad - \quad 1 \quad - \quad 5 \quad + \end{array}$$

$$D_f = (-\infty, -1) \cup (0, +\infty)$$

$$\text{الف) } \frac{(x-1)(x-3)}{x^2(x-1)} \geq 0$$

$$\begin{array}{c} 0 \quad 1 \quad 3 \\ + \quad - \quad + \end{array}$$

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

$$\Rightarrow \sqrt{\frac{x^2 - 4x + 3}{(x+1)(x-1)}}$$

$$x \neq \pm 1$$

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

$$\text{الف) } \log(x^2 - 3x)$$

$$x^2 - 3x > 0$$

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

$$x > 3$$

$$x < 0$$

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

$$\Rightarrow 14 - x^2 > 0$$

$$|x| < \sqrt{14}$$

$$|x| \neq 1$$

$$- \sqrt{14} < x < \sqrt{14}$$

$$x > \sqrt{14}, x < -\sqrt{14}$$

$$x \neq \pm 1$$

$$D_f = (-\sqrt{14}, -1) \cup (1, \sqrt{14}) \cup \{\pm \sqrt{14}\}$$

$$\text{ج) } \frac{(6x-3)(x-4)}{(x-3)} > 0$$

$$\begin{array}{c} 3 \quad 4 \\ - \quad - \quad + \end{array}$$

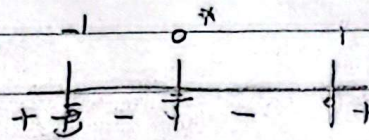
$$x > 4$$

$$D_f = (4, +\infty)$$

$$\text{د) } \sqrt{x^2 - 11x + 28} = (x-4)(x-7) > 0 \Rightarrow x < 4, x \geq 7 / x > 0, x \neq 1$$

$$14 - x^2 > 0 \Rightarrow -\sqrt{14} < x < \sqrt{14} \quad | \quad D_f = (0, 1) \cup (1, 4)$$

$$y = \frac{x^2 - x}{x^2 + x} = \frac{x(x-1)}{x(x+1)}$$

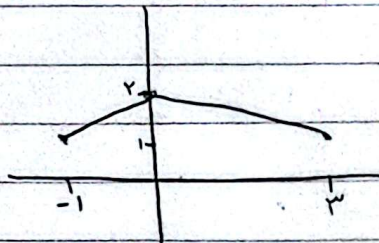


	x	-1	0	1	
$x(x-1)$		+	+	-	+
$x(x+1)$		+	0	-	+
		+	-	-	+

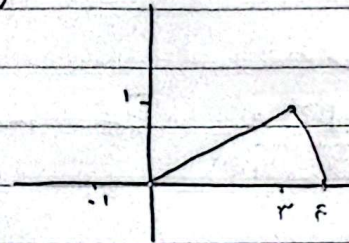
$$y = \sqrt{\frac{x - f(x)}{f(x)}}$$

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

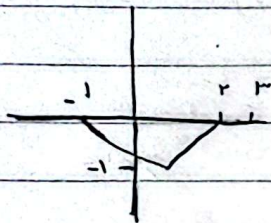
الف)



ب)



ج)



د)

