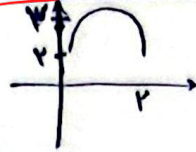
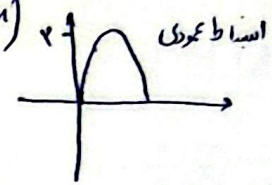


الف) $f(x)+2$

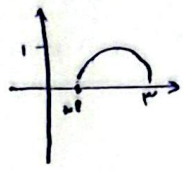


ب) $2f(x)$

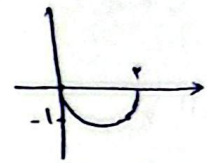


(1)

ج) $f(x-1)$
پیمت راست

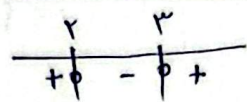


د) $-f(x)$
تزیین نسبت به x



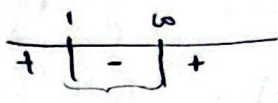
(2) ✓

الف) $x^2 - 5x + 4 > 0$
 $(x-2)(x-4)$



$D_f = (-\infty, 2) \cup (4, +\infty)$

ب) $x^2 - 4x + 5 < 0$
 $(x-1)(x-5)$

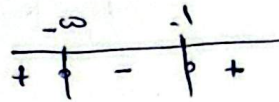


$D_f = (1, 5)$

(2)

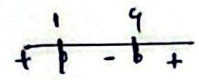
(2) ✓

ج) $x^2 + 4x + 5 \geq 0$
 $(x+1)(x+5)$



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

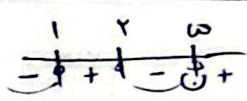
د) $x^2 - 4x + 4 \leq 0$
 $(x-1)(x-4)$



$D_f = [1, 4]$

الف) $\frac{x^2 - 2x + 2}{x - 5} < 0$

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



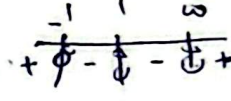
$D_f = (-\infty, 1) \cup (2, 5)$

(3)

(2) ✓

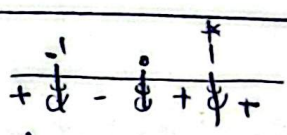
ب) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$

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



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

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}} \Rightarrow$
 $x(x^2 - 1) \rightarrow x(x-1)(x+1)$



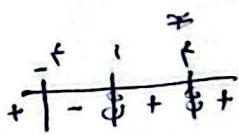
$D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$

(4)

(2) ✓

ب) $y = \sqrt{\frac{x^2 - 14}{x^2 - 5x + 4}} \Rightarrow$

$\frac{(x-4)(x+4)}{(x-1)(x-4)}$



$D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$

$$\text{الف) } y = \sqrt{t - \sqrt{t \cdot n}}$$

$$D_f = [-1, 2]$$

$$t \cdot n \geq 0 \rightarrow n \leq 2$$

$$t - \sqrt{t \cdot n} \geq 0 \rightarrow t \geq \sqrt{t \cdot n} \rightarrow 1 \geq \sqrt{n} \rightarrow n \leq 1$$

(5) ✓

$$\text{ب) } y = \sqrt{t \cdot \sqrt{n - t}}$$

$$n - t \geq 0 \rightarrow n \geq t$$

$$t - \sqrt{t \cdot n} \geq 0 \rightarrow t \geq \sqrt{t \cdot n} \rightarrow 1 \geq \sqrt{n - t} \rightarrow n \leq 1$$

$$D_f = [2, 11]$$

$$\text{الف) } y = \sqrt{t - 2n^2}$$

$$t - 2n^2 \geq 0$$

$$2n^2 \leq t$$

$$n^2 \leq \frac{t}{2} \rightarrow -\sqrt{\frac{t}{2}} \leq n \leq \sqrt{\frac{t}{2}}$$

$$D_f = [-\sqrt{2}, \sqrt{2}]$$

(6)

$$\text{ب) } y = \sqrt{3|n| - 9}$$

$$3|n| - 9 \geq 0$$

$$3|n| \geq 9 \rightarrow |n| \geq 3$$

$$n \geq 3$$

$$n \leq -3$$

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

$$\text{الف) } y = \sqrt{\frac{|n| + 1}{|n| - 3}}$$

$$|n| + 1 \geq 0$$

$$|n| \neq 3$$

$$n \neq \pm 3$$

$$D_f = \mathbb{R} - \{\pm 3\}$$

$$\text{ب) } y = \sqrt{\frac{\sqrt{n+1}}{\sqrt{n-3}}}$$

$$n \geq 0$$

$$\sqrt{n-3} \neq 0$$

$$\sqrt{n} \neq 3 \rightarrow n \neq 9$$

$$D_f = [0, +\infty) - \{9\}$$

(7)

$$\text{الف) } \frac{\sin x}{\cos x - 1}$$

$$\cos x - 1 \neq 0$$

$$\cos x \neq 1$$

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

$$D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{2}\}$$



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

$$\sin x + 1 \neq 0$$

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



$$D_f = \mathbb{R} - \{2k\pi - \frac{\pi}{2}, 2k\pi + \frac{\pi}{2}\}$$

(8)

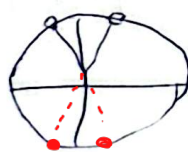
$$\text{ج) } y = \frac{\tan x + 1}{\cot x - 1}$$

$$\cot x \neq 1 \rightarrow x \neq k\pi + \frac{\pi}{4}$$

$$\sin x \neq 0 \rightarrow k\pi$$

$$D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{4}\}$$

$$\cos x \neq 0 \rightarrow x \neq k\pi + \frac{\pi}{2}$$



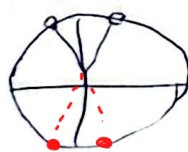
$$D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4}\}$$

$$k\pi \pm \frac{\pi}{4}$$

$$\text{د) } y = \frac{\sin x + 1}{\sin^2 x - \frac{1}{4}}$$

$$\sin^2 x \neq \frac{1}{4}$$

$$\sin x \neq \pm \frac{1}{2}$$



$$D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}, 2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\}$$

$$k\pi \pm \frac{\pi}{6}$$

$$y = \frac{1}{\sqrt{2|x-2| - \frac{1}{4}}}$$

$$2|x-2| - \frac{1}{4} > 0$$

$$2|x-2| > \frac{1}{4} \rightarrow |x-2| > \frac{1}{8} \rightarrow x-2 > \frac{1}{8} \rightarrow x > \frac{9}{8}$$

$$x-2 < -\frac{1}{8} \rightarrow x < \frac{15}{8}$$

$$D_f = (-\infty, \frac{15}{8}) \cup (\frac{9}{8}, +\infty)$$

9

✓

الف) $y = \sqrt{4-2|m|}$

$$2|m| \leq 4 \rightarrow |m| \leq 2 \quad -2 \leq m \leq 2$$

$$D_f = [-2, 2]$$

✓

ب) $y = \sqrt{\frac{|x|}{|m|}}$

$$|x| \neq 0$$

$$x \neq 0$$

برای همه اعداد جز صفر مخرج را

صفر می کند کسر برابر 1 است

و زیر رادیکال تعریف می شود

$$D_f = \mathbb{R} \setminus \{0\}$$

10