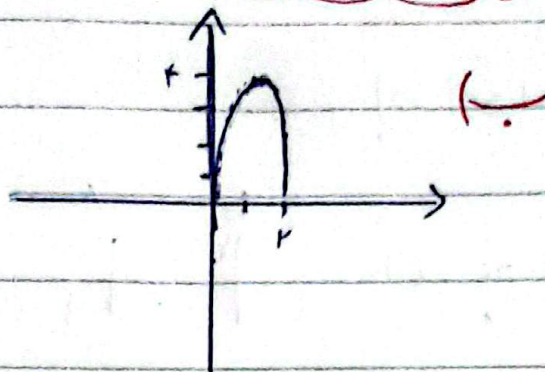
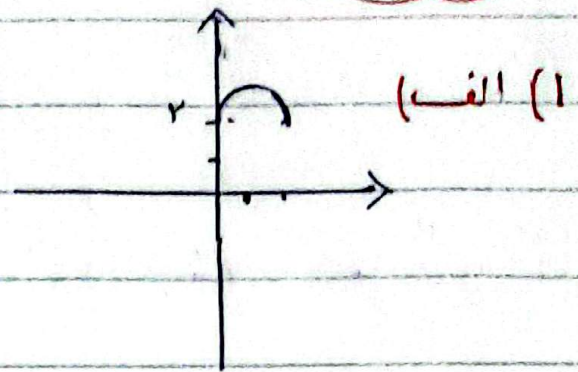


دھم C دفتر

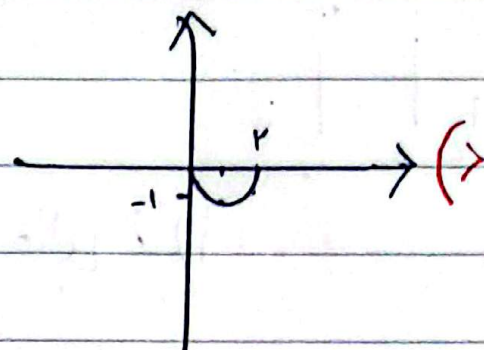


$$r f(x) \Rightarrow r y$$

السیاحی بی

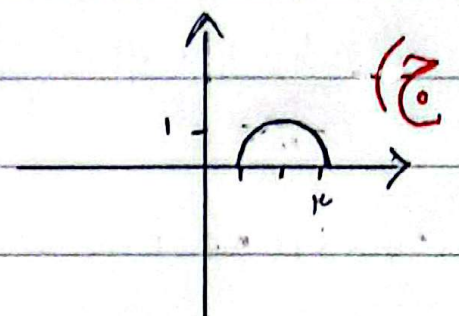


$$f(x) + \frac{r}{0.6}$$



$$-f(x)$$

نکلس

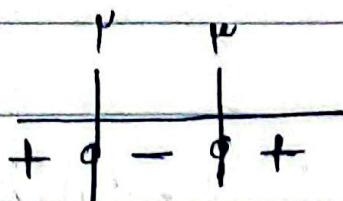


$$f(x-1)$$

سب

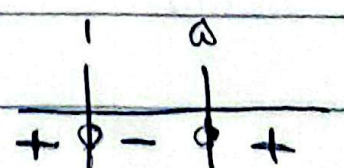
الف) $x^2 - 2x + 4 > 0 \Rightarrow (x-2)(x-4)$

(r)



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

ب) $x^2 - 4x + 5 < 0 \Rightarrow (x-1)(x-5)$



$$\Rightarrow D_f = (1, 5)$$

SEVIL

$$ج) x^2 + 4x + 5 \geq 0 \Rightarrow (x+1)(x+5) \quad \begin{array}{c} -1 \quad -5 \\ + \quad | \quad - \quad | \quad + \end{array}$$

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

$$د) x^2 - 5x + 4 \leq 0 \Rightarrow (x-1)(x-4) \quad \begin{array}{c} 1 \quad 4 \\ + \quad | \quad - \quad | \quad + \end{array}$$

$$\Rightarrow D_f = [1, 4]$$

$$الف) \frac{x^2 - 4x + 4}{x - 2} < 0 \Rightarrow \begin{array}{c} 1 \quad 2 \quad 2 \\ - \quad | \quad + \quad | \quad - \quad | \quad + \end{array} \quad (1)$$

$$(x-1)(x-2) \quad D_f = (-\infty, 1) \cup (2, +\infty)$$

$$ب) \frac{x^2 - 1}{x^2 - 4x + 5} \geq 0 \Rightarrow \frac{(x-1)(x+1)}{(x-1)(x-5)} \quad \begin{array}{c} -1 \quad 1 \quad 5 \\ + \quad | \quad - \quad | \quad - \quad | \quad + \end{array}$$

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

$$الف) y = \sqrt{\frac{x^2 - 1}{x^2 - 2x}} \Rightarrow \frac{(x-1)(x+1)}{x(x-1)(x+1)} \geq 0 \quad (1)$$

$$\begin{array}{c} -1 \quad 0 \quad 1 \\ + \quad | \quad - \quad | \quad + \quad | \quad + \end{array} \Rightarrow D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$$

$$y = \frac{x^2 - 14}{x^2 - 2x + 5} \Rightarrow \frac{(x-1)(x+1)}{(x-1)(x-5)} > 0 \quad (14)$$

$$\begin{array}{c} -K \quad 1 \quad K \\ + \quad - \quad + \quad + \\ \underbrace{\quad} \quad \underbrace{\quad} \end{array} \Rightarrow D_f = (-\infty, -K] \cup (1, K) \cup (5, +\infty)$$

$$(الف) y = \sqrt{K} - \sqrt{x-a} \quad (15)$$

$$(1) \rightarrow K - \sqrt{x-a} > 0 \Rightarrow K > \sqrt{x-a} \Rightarrow 14 > \sqrt{x-a}$$

$$(2) \rightarrow \sqrt{x-a} > 0 \Rightarrow x > a \quad \begin{array}{l} 14 > -a \\ a > -14 \end{array}$$

$$D_f = (1, 14]$$

$$(1, 2) \rightarrow y = \sqrt{K} - \sqrt{a-x} \Rightarrow \sqrt{K} - \sqrt{a-x} > 0$$

$$\sqrt{K} > \sqrt{a-x}$$

$$(1) \rightarrow a-x > 0 \Rightarrow \begin{array}{l} a > x \\ a > a-x \Rightarrow 11 > a \\ a < 11 \end{array}$$

$$(1, 2) \rightarrow D_f = [x, 11]$$

$$(الف) y = \sqrt{K - x a^x} \Rightarrow K - x a^x > 0 \Rightarrow K > x a^x \quad (16)$$

$$D_f = (-\sqrt{K}, \sqrt{K})$$

$$\text{ب) } y = \sqrt{\mu|x| - 9} \Rightarrow \mu|x| - 9 \geq 0 \quad (4)$$

$$|x| - \frac{9}{\mu} \geq 0 \Rightarrow |x| \geq \frac{9}{\mu}$$

$$D_f = (-\infty, -\frac{9}{\mu}] \cup [\frac{9}{\mu}, +\infty) \quad \leftarrow \begin{matrix} x \geq \frac{9}{\mu} \\ x \leq -\frac{9}{\mu} \end{matrix}$$

$$\text{الف) } y = \frac{\sqrt{|x|+1}}{\sqrt{|x|-\mu}} \Rightarrow |x| \neq \mu \quad (5)$$

$$x \neq \pm \mu$$

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

$$\text{ب) } y = \frac{\sqrt{x+1}}{\sqrt{x-\mu}} \Rightarrow \begin{cases} x \geq 0 \\ x \neq \mu \Rightarrow x \neq 9 \end{cases}$$

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

$$\text{الف) } y = \frac{\sin u}{\mu \cos u - 1} \Rightarrow \mu \cos u \neq 1 \quad (6)$$

$$\cos u \neq \frac{1}{\mu}$$

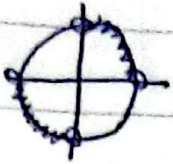
$$\mu \neq \frac{1}{\cos u}$$

$$D_f = \mathbb{R} - \left\{ \mu k\pi \pm \frac{\pi}{\mu} \right\}$$

$$\text{ب) } y = \frac{\cos u + 1}{\mu \sin u + 1} \Rightarrow \mu \sin u \neq -1 \Rightarrow \sin u \neq -\frac{1}{\mu}$$

$$D_f = \mathbb{R} - \left\{ \left\{ \mu k\pi - \frac{\pi}{4} \right\} \cup \left\{ \mu k\pi - \frac{5\pi}{4} \right\} \right\}$$

$$ج) y = \frac{\frac{\sin}{\cos} + \mu}{\cot u - 1} \Rightarrow \left\{ \begin{array}{l} \cot u \neq 1 \quad u \neq k\pi + \frac{\pi}{4} \quad (\wedge) \\ \Rightarrow \cos \neq \sin \quad u \neq k\pi \\ \text{في } \frac{\pi}{4}, \frac{5\pi}{4}, \dots \quad u \neq k\pi + \frac{\pi}{4} \\ \cos \neq 0, \sin \neq 0 \end{array} \right.$$



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

$$د) y = \frac{\sin u + 1}{k \sin^2 u - \mu} \Rightarrow k \sin^2 u \neq \mu$$

$$\sin u \neq \frac{\sqrt{\mu}}{k}$$

في $\frac{\pi}{6}, \frac{5\pi}{6}, \dots$

$$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6} \right\}$$

$$y = \frac{1}{\sqrt{k|u - \mu|} - \frac{1}{\mu}} \Rightarrow k|u - \mu| - \frac{1}{\mu} > 0 \quad (9)$$

$$|u - \mu| > \frac{1}{k\mu}$$

$$D_f = \left(-\infty, \frac{\mu}{\epsilon} \right) \cup \left(\frac{\mu}{\epsilon}, +\infty \right) = \begin{cases} u - \mu > \frac{1}{k} \Rightarrow u > \frac{\mu}{\epsilon} \\ u - \mu < -\frac{1}{k} \Rightarrow u < \frac{\mu}{\epsilon} \end{cases}$$

$$هـ) y = \sqrt{k - \mu|u|} \Rightarrow k - \mu|u| \geq 0 \quad (10)$$

$$k \geq \mu|u|$$

$$D_f = [-\mu, \mu]$$

$$\mu \geq |u| \Rightarrow \mu \geq u \geq -\mu$$

$$\rightarrow y = \sqrt{\frac{|x|}{|x|}} \Rightarrow |x| \neq 0 \Rightarrow x \neq 0$$

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