

Date

No

17, 18

$$1) y = \sqrt{\varepsilon - x^2} \rightarrow \varepsilon - x^2 \geq 0$$

$$x^2 \leq \varepsilon$$

$$x^2 \leq 2$$

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

$$\frac{\sqrt{2}}{-\sqrt{2}}$$

1, 2

$$\rightarrow \sqrt{x^2 - 9} \rightarrow x^2 - 9 \geq 0$$

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

$$|R - \{(-9, 9)\}|$$

$$x^2 \geq 9$$

$$2) \sqrt{\frac{|x|+1}{|x|-3}} \rightarrow \frac{|x|+1}{|x|-3} \geq 0$$

$$|R - \{(3, 5)\}|$$

$$\neq 0 \rightarrow \text{مخرج صفر}$$

(2) ✓

$$3) \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-2}} \rightarrow \sqrt{x} \geq 0$$

$$\sqrt{x} - 2 \neq 0 \rightarrow \sqrt{x} \neq 2$$

$$x \neq 4$$

$$[0, 4) \cup (4, \infty)$$

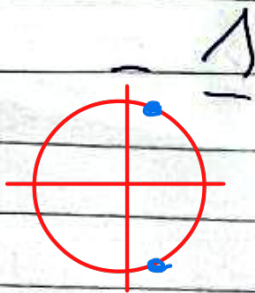
$$y = \sin x$$

$$y = \cos x - 1$$

$$\cos \neq \frac{1}{2}$$

$$D_f = |R - \{4k\pi \pm \frac{\pi}{3} | k \in \mathbb{Z}\}|$$

$$\{4k\pi \pm \frac{\pi}{3}\}$$



$$\Rightarrow \frac{\cos x + 1}{r \sin x + 1} \rightarrow r \sin x + 1 \neq 0$$

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

$$Df = \{R - \left\{ \frac{\sqrt{r}x}{s} + \frac{\pi}{s}, \frac{\pi}{s} + \frac{\sqrt{r}x}{s} \right\}\}$$

lib

$$\Rightarrow \frac{\tan x + r}{\cot x - 1} \rightarrow \frac{\sin x + r}{\cos} \rightarrow \neq 0$$

$$\rightarrow \frac{\cos}{\sin} \rightarrow \sin \neq 0 \rightarrow \frac{\cos}{\sin} \neq 1$$

$$Df = \{R - \left\{ \{k\pi\} \cup \left\{ \frac{\pi}{r} + k\pi \right\} \cup \left\{ \frac{\pi}{s} + k\pi \right\} \right\}\}$$

$$\Rightarrow \frac{8 \sin x + 1}{\sin^2 x - 5} \rightarrow 8 \sin^2 x - 5 \neq 0$$

$$\sin^2 x \neq \frac{5}{8}$$

$$D = \{R - \left\{ \frac{\pi}{r}, \frac{\sqrt{r}x}{r}, \frac{\pi}{r}, \frac{\sqrt{r}x}{r} + \frac{\pi}{r} \right\}\}$$

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

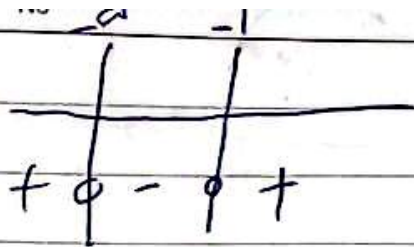
$$\frac{1}{\sqrt{r|x-y|} - \frac{1}{r}} \rightarrow r|x-y| - \frac{1}{r} \neq 0 \rightarrow r|x-y| \neq \frac{1}{r} \rightarrow |x-y| > \frac{1}{r^2}$$

$$(-\infty, \frac{1}{r^2}) \cup (\frac{1}{r^2}, \infty)$$

✓

ج) $x^2 + 9x + 4 \geq 0$

$(x+1)(x+4) \geq 0$

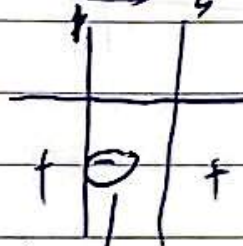


$(-\infty, -4] \cup [-1, \infty)$

مجموعه جواب

د) $x^2 - 7x + 9 \leq 0$

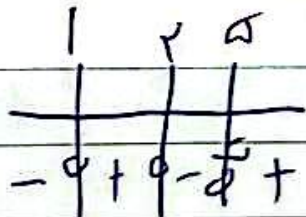
$(x-1)(x-9) \leq 0$



(۲) ✓

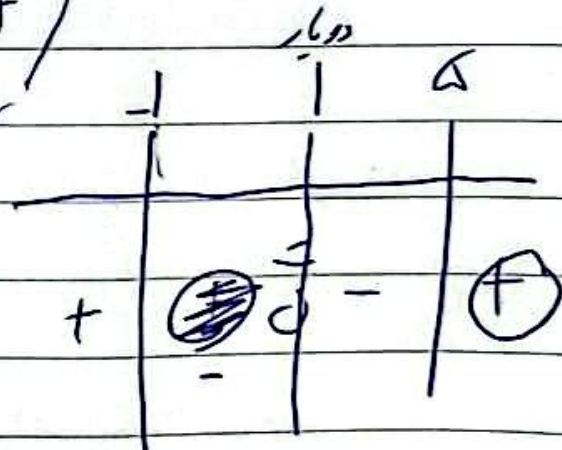
$[1, 9]$

و) $\frac{x^2 - 3x + 2}{x - 5} < 0$



مجموعه جواب

$(-\infty, 2) \cup (5, 3)$



ب) $\frac{x^2 - 1}{x^2 + 9x + 4} \geq 0 = \frac{(x-1)(x+1)}{(x+1)(x+4)}$

$(-\infty, -1) \cup (5, \infty)$

$(-\infty, -1)$

(۲) ✓

$$\sqrt{\frac{x^2-1}{x^2-x}}$$

Σ 1/✓

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

Ⓟ ✓

$$(-\infty, -1] \cup (0, 1) \cup (1, \infty) \leftarrow \begin{array}{c|c|c|c} & -1 & 0 & 1 \\ \hline & + & - & + \end{array}$$

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

$$(-\infty, -1-\epsilon] \cup (-1+\epsilon, 1-\epsilon) \cup (1+\epsilon, \infty) \leftarrow \begin{array}{c|c|c|c} -\epsilon & 1 & \epsilon & \\ \hline & + & - & + \end{array}$$

$$y = \sqrt{\epsilon - \sqrt{x-1}} \rightarrow \begin{cases} x-1 \geq 0 \rightarrow x \geq 1 \\ \epsilon - \sqrt{x-1} \geq 0 \rightarrow \epsilon \geq \sqrt{x-1} \end{cases} \quad \Sigma 1/✓$$

Ⓟ ✓

$$[-1\epsilon, 1]$$

$$1\epsilon \geq \sqrt{x-1}$$

$$1\epsilon \geq x-1$$

$$y = \sqrt{x-1} - \sqrt{x-1}$$

$$\rightarrow x \geq 1$$

$$\sqrt{x-1} - \sqrt{x-1} \geq 0 \rightarrow x \geq \sqrt{x-1}$$

$$x \leq x \geq 1$$

$$\rightarrow x \geq 1$$

$$\downarrow$$

$$[1, 1]$$

Date

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C10 \$

$$f(x) = \sqrt{\varepsilon - r|x|}$$

$$\varepsilon - r|x| \geq 0$$

$$|x| \leq r$$

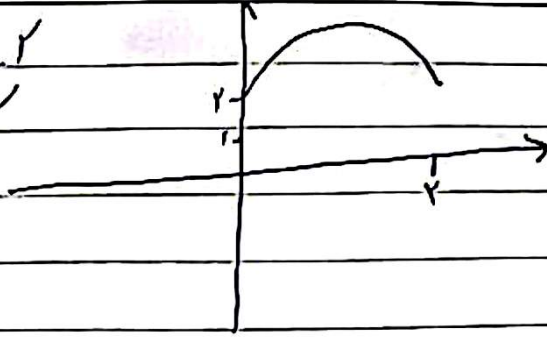
$$[-r, r]$$

r ✓

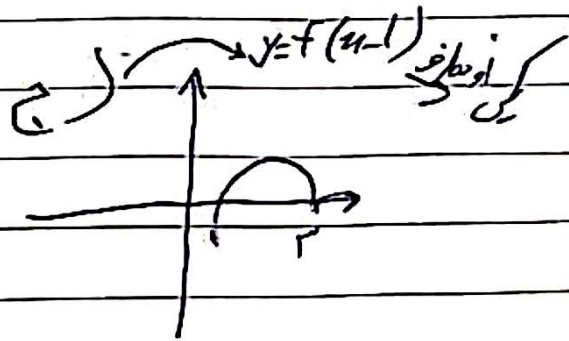
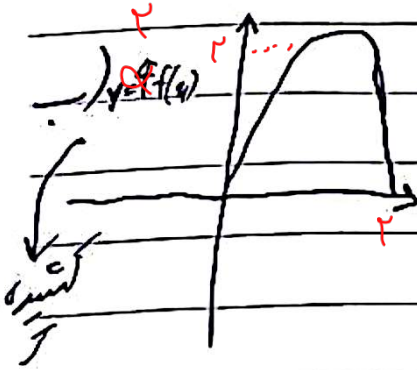
$$\lim_{x \rightarrow 0} \frac{|x|}{|x|} \rightarrow \frac{|x|}{|x|} = 1$$

$$x \neq 0 \quad |R \neq 0$$

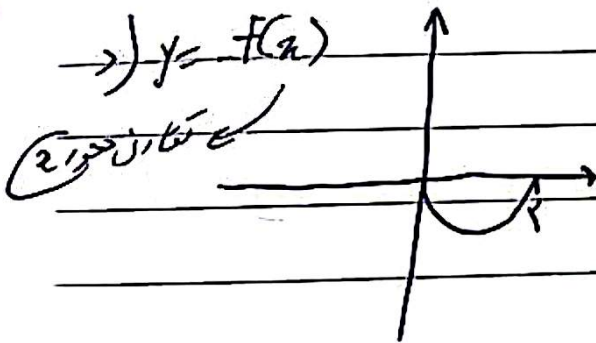
الف) $f(x) = x^2 - 2x + 1$
دو تا جواب



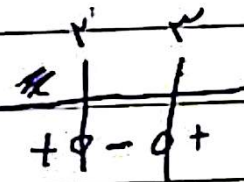
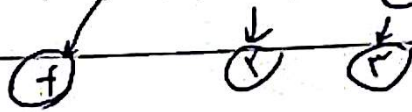
(1)



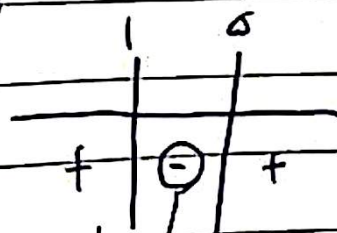
1, 1.75



الف) $x^2 - 2x + 1 > 0 \Rightarrow (x-1)(x-1) > 0$



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



این دو بی جواب است (1.75)