

Ques 10

Subject.

$$\sqrt{\frac{x^2-14}{x^2-5x+2}} \geq 0 \quad \frac{(x-2)(x+2)}{(x-1)(x-2)} + \frac{-1}{0} + \frac{1}{0} + \frac{2}{0} \quad \mathbb{R} - (-2, 1) \cup \{2\} \quad (2)$$

$$y = \sqrt{2 - \sqrt{r-x}} \geq 0 \rightarrow 2 - \sqrt{r-x} \geq 0 \rightarrow \sqrt{r-x} \leq 2 \rightarrow r-x \leq 4 \rightarrow r \leq x+4 \rightarrow x \geq r-4 \rightarrow x \geq -12 \leq x$$

$$\mathbb{R} - (-\infty, -12] \cup (r, \infty)$$

$$y = \sqrt{x - \sqrt{x-r}} \geq 0 \quad \{r\} \quad x - \sqrt{x-r} \geq 0 \rightarrow x \geq \sqrt{x-r} \rightarrow x^2 \geq x-r \rightarrow x^2 - x + r \geq 0$$

$$\frac{(x-r)(x+r)}{(x-r)(x+r)} \quad [r, 11]$$

$$y = \sqrt{2 - x^2} \geq 0 \rightarrow 2 - x^2 \geq 0 \rightarrow x^2 \leq 2 \rightarrow -\sqrt{2} \leq x \leq \sqrt{2} \quad [-\sqrt{2}, \sqrt{2}] \quad (4)$$

$$y = \sqrt{r|x|-9} \geq 0 \rightarrow r|x|-9 \geq 0 \rightarrow r|x| \geq 9 \rightarrow |x| \geq \frac{9}{r} \rightarrow x \geq \frac{9}{r}, -x \geq \frac{9}{r} \rightarrow x \leq -\frac{9}{r}$$

$$(-\infty, -\frac{9}{r}] \cup [\frac{9}{r}, \infty)$$

$$|x| - r \neq 0 \rightarrow |x| \neq r \quad \mathbb{R} - \{r, -r\}$$

$$\sqrt{x} - r \neq 0 \rightarrow \sqrt{x} \neq r \rightarrow x \neq r^2 \quad \mathbb{R} - \{r^2\}$$

$$\frac{\sin x}{r \cos x - 1} \rightarrow r \cos x - 1 \neq 0 \rightarrow r \cos x \neq 1 \rightarrow \cos x \neq \frac{1}{r} \quad \mathbb{R} - \left\{ \arccos \frac{1}{r}, 2\pi - \arccos \frac{1}{r} \right\}$$

$$r \sin x + 1 \rightarrow \sin x \neq -\frac{1}{r} \rightarrow \mathbb{R} - \left\{ \arcsin \left(-\frac{1}{r} \right), \pi - \arcsin \left(-\frac{1}{r} \right) \right\}$$

$$\cot x \neq 1 \rightarrow x \neq \frac{\pi}{4}, \frac{5\pi}{4} \quad \mathbb{R} - \left\{ \frac{\pi}{4}, \frac{5\pi}{4} \right\}$$

$$21? \text{ for } \cos x \neq 0 \rightarrow x \neq \frac{\pi}{2}, \frac{3\pi}{2} \quad \mathbb{R} - \left\{ \frac{\pi}{2}, \frac{3\pi}{2} \right\}$$

$$\sin^2 x - r \neq 0 \rightarrow \sin x \neq \pm \sqrt{r} \rightarrow \mathbb{R} - \left\{ \arcsin \sqrt{r}, \pi - \arcsin \sqrt{r}, \arcsin(-\sqrt{r}), \pi - \arcsin(-\sqrt{r}) \right\}$$

$$\sqrt{r|x-r|} - \frac{1}{r} \geq 0 \rightarrow r|x-r| - \frac{1}{r} \geq 0 \rightarrow r|x-r| \geq \frac{1}{r} \rightarrow |x-r| \geq \frac{1}{r^2} \rightarrow x \leq r - \frac{1}{r^2} \text{ or } x \geq r + \frac{1}{r^2}$$

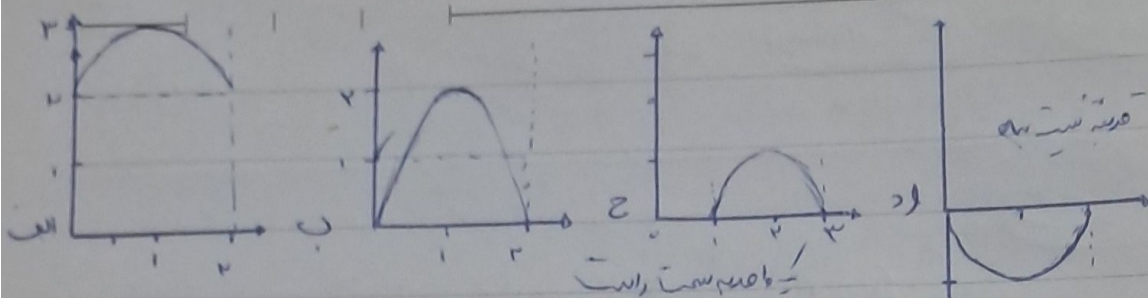
$$\mathbb{R} - \left(r - \frac{1}{r^2}, r + \frac{1}{r^2} \right)$$

$$r - r|x| \geq 0 \rightarrow r \geq r|x| \rightarrow 1 \geq |x| \rightarrow x \in [-1, 1]$$

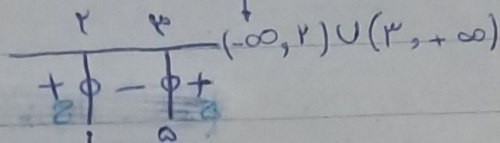
$$\frac{|x|}{|x|} \geq 0 \quad \mathbb{R}$$

Subject: ماتریس

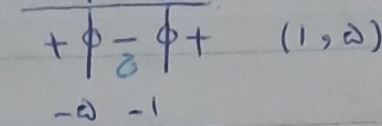
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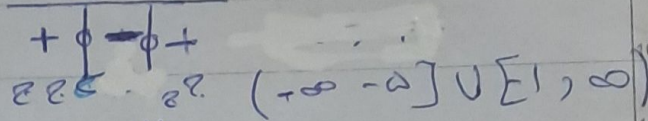
الف) $x^2 - 5x + 4 > 0 \rightarrow (x-1)(x-4)$



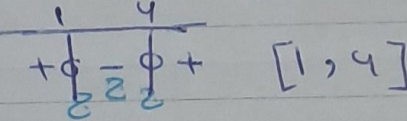
ب) $x^2 - 4x + 4 < 0 \rightarrow (x-1)(x-4)$



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



د) $x^2 - 7x + 4 \leq 0 \rightarrow (x+1)(x-4)$



الف) $\frac{x^2 - 3x + 2}{(x-5)} < 0$

نکته: $\omega \rightarrow$ تبدیل شده

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

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

نکته: $\omega \rightarrow$ تبدیل شده

ج) $\sqrt{\frac{x^2 - 1}{x^2 - 4x + 4}} \geq 0$

$\rightarrow x(x^2 - 1)$
 $\rightarrow x(x-1)(x+1)$