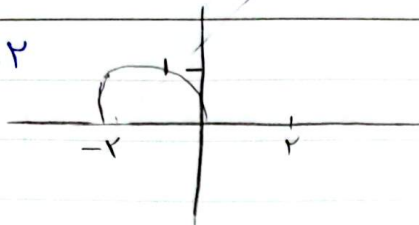
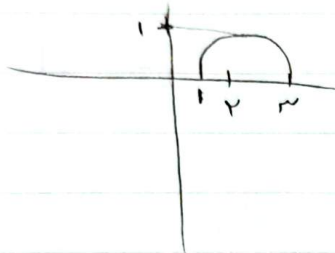


الف) $F(x, y)$



ب) $yF(x)$

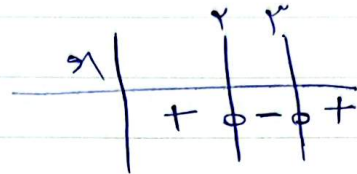
ج) $f(x, 1)$



د) $-F(x)$

الف) $x^2 - 8x + 4 > 0$

$$(x-4)(x-2)$$

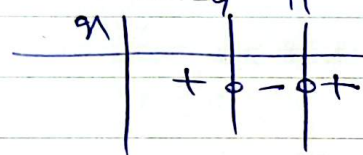


$$(-\infty, 2) \cup (4, +\infty)$$

ب) $x^2 - 4x + 5 < 0$

$$(1, 11)$$

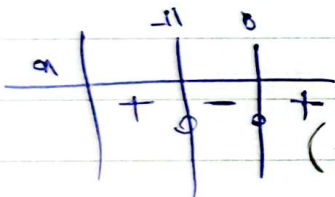
$$\Delta = 16 - 20 = -4$$



$$\frac{-b \pm \sqrt{\Delta}}{2a}$$

$$\frac{4 \pm \sqrt{4}}{2} = \frac{4 \pm 2}{2} = 1, 11$$

ج) $x^2 + 4x + 5 \geq 0$



$$\Delta = 16 - 20 = -4$$

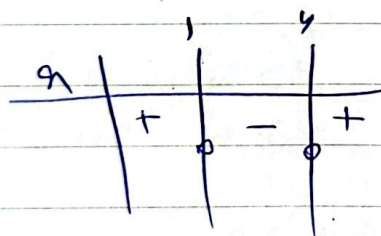
$$\frac{-b \pm \sqrt{\Delta}}{2a}$$

$$\frac{-4 \pm \sqrt{4}}{2} = \frac{-4 \pm 2}{2} = -1, -5$$

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

د) $x^2 - 4x + 4 \leq 0$

$$[1, 4]$$



$$\frac{-b \pm \sqrt{\Delta}}{2a}$$

او د ز ورشماي صورت

$$x \neq 0$$

$$\frac{x^2 - 2x + 2}{x - 0} < 0$$

$$R \{2, 1, 0\}$$

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

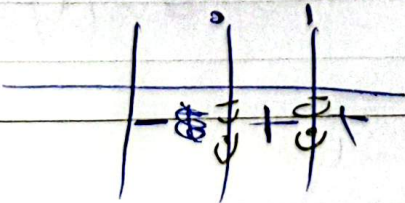
$$R \{4, 11\}$$

$$\sqrt{\frac{x^2 - 1}{x^2 - 4x + 5}}$$

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

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

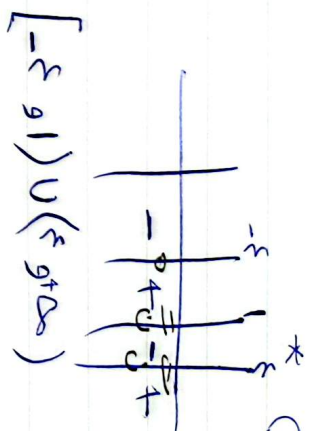
$$\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$$



$$(0, +\infty) - \{1\}$$

$$\sqrt{\frac{a^2 - 14}{a^2 - 8a + 4}}$$

$$\frac{\begin{pmatrix} -3 \\ a+3 \end{pmatrix} \begin{pmatrix} 3 \\ a-3 \end{pmatrix}}{\begin{pmatrix} 3 \\ a+3 \end{pmatrix} \begin{pmatrix} 1 \\ a-3 \end{pmatrix}}$$



$$[-3, 1) \cup (2, \infty)$$

$$\sqrt{3 - \sqrt{r - a}}$$

$$r - a > 0$$

$$3 - \sqrt{r - a} > 0$$

$$\sqrt{r - a} < 3$$

$$14 > r - a \Rightarrow 14 > a - r \Rightarrow 14 < a$$

$$\sqrt{r - \sqrt{a - r}}$$

$$a - r > 0$$

$$r - \sqrt{a - r} > 0$$

$$r > \sqrt{a - r}$$

$$14 < a$$

$$y = \sqrt{3 - \sqrt{a - r}}$$

$$\begin{aligned} 3 - \sqrt{a - r} &\geq 0 \\ \sqrt{a - r} &\leq 3 \\ a - r &\leq 9 \\ a &\leq r + 9 \end{aligned}$$

$$y = \sqrt{14 - a}$$

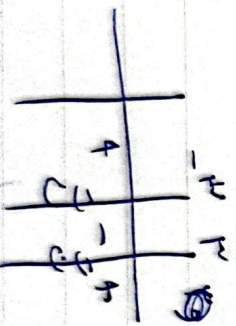
$$r - a > 0$$

$$r - a > 9$$

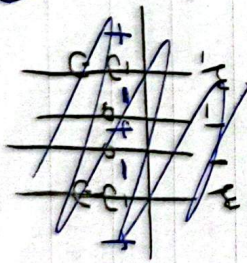
$$|a| > r$$

$$a \neq 9$$

$$\sqrt{\frac{r - a + 1}{a - r}} \neq 0$$



$$(-\infty, -14) \cup (10, \infty)$$



$$a > r$$

$$a < -r$$

$$\sqrt{\frac{r - a + 1}{a - r}}$$

$$a \neq r$$

$$\{a > r\} \cup \{a < -r\}$$

$$\frac{\sin \alpha}{r \cos \alpha - 1}$$

$$\frac{r \cos \alpha \pm \sqrt{r^2 - 1}}{\cos \alpha \neq \pm \frac{1}{r}} \quad \left. \begin{matrix} r \cos \alpha + \frac{1}{r} \\ r \cos \alpha - \frac{1}{r} \end{matrix} \right\}$$

(A)

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

$$r \sin \alpha \neq -1$$

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

$$2) z = \frac{\tan \alpha + r}{\cot \alpha + 1}$$

$$\frac{\sin \alpha}{\cos \alpha} \neq 0$$

$$\frac{\cos \alpha}{\sin \alpha} \neq 0$$

$$IR - \left\{ \begin{matrix} r \cos \alpha + \frac{1}{r} \\ r \cos \alpha - \frac{1}{r} \end{matrix} \right\}$$

$$\frac{\sin \alpha + 1}{r \sin \alpha - r}$$

$$r \sin \alpha \neq r$$

$$r \sin \alpha \neq r$$

$$\sin \alpha \neq 1$$

$$\sin \alpha \neq \pm \frac{1}{r}$$

$$y = \frac{1}{r |a - r| - \frac{1}{r}}$$

$$r |a - r| - \frac{1}{r} > 0$$

(9)

$$a = \left(-\frac{1}{r}, \frac{1}{r} \right)$$

$$r |a - r| > \frac{1}{r}$$

$$|a - r| > \frac{1}{r^2}$$

$$a - r > \frac{1}{r^2}$$

$$a - r < -\frac{1}{r^2}$$

$$a > -\frac{1}{r^2}$$

$$a < -\frac{1}{r^2}$$

$$y = \sqrt{r - r |a|}$$

$$r - r |a| > 0$$

$$r |a| > -r$$

$$a = (-r, r)$$

$$|a| > -r$$

$$a > -r$$

$$a < -r$$

$$y = \sqrt{\frac{|a|}{r}}$$

$$|a| \neq 0$$

$$r \neq 0$$

$$IR - \{0\}$$

● dotnote