

الف) $y = x^2 - \omega = x - x = y - \omega \Rightarrow x = y + \omega = x \Rightarrow x = \sqrt{y + \omega} \Rightarrow R_f = [\omega, +\infty)$

c) $y \in \mathbb{R}^n + 1 \rightarrow \mathbb{R}^n \times \mathbb{R} - 1 \rightarrow \mathbb{R}^n \times \sqrt{\mathbb{R} - 1} \rightarrow R_f = R$

الف) $y = x^2 - 4x + 4$ $y = (x-2)^2 + 0$ $y = (x-2)^2$ $x = \pm \sqrt{y-0} + 2 \rightarrow \mathcal{D} = [2, +\infty)$ ②

$$y(x) = y_0 + \frac{y_1 - y_0}{x_1 - x_0} (x - x_0)$$

$$\text{il, } y = \frac{x^v + w}{x^v z - y} \rightarrow y x^v - y y = x^v + w \rightarrow x^v (y - 1) = y y + w \rightarrow x^v = \sqrt{\frac{y y + w}{y - 1}} \xrightarrow{+1} \frac{-\frac{v}{y}}{+\frac{1}{y} - \frac{1}{y} +}$$

$$\lim_{x \rightarrow -\infty} y = \frac{r|x|+1}{|x|-c} = y|x|-cy = r|x|+1 \rightarrow |x|(y-r) = ry+1 = r|x|$$

 $\frac{ry+1}{y-r} = \frac{-\frac{1}{r}}{\frac{-1}{r}-c}$
 $R_f = \frac{-0.7-1}{-1}, (-\infty)$

$$y \cdot \frac{1}{x^2 - 4x} \Rightarrow yx^2 - 4xy - 1 = 0 \quad x = \frac{4y \pm \sqrt{16y^2 + 4y}}{2} \quad 16y^2 + 4y \geq 0$$

$$y \neq 0 \quad y < -\frac{1}{4} \quad 4y(4y + 1) \geq 0 \quad -\frac{1}{4} \leq y < 0$$

$$R_2 = (-\infty, -\frac{1}{4}] \cup (0, +\infty)$$

$$y = x^2 - 9x + 5 \quad \text{min} \quad \begin{cases} x = \frac{9}{2} = 4.5 \\ y = -15.25 \end{cases} \Rightarrow [4.5, \infty) = D_f$$

$$y = -x^2 + 4x + 4 \quad \text{max} \quad \begin{cases} x = \frac{-b}{-2a} = 1 \\ y = 4 \end{cases} = 4[-\infty, -4] = \mathbb{R}$$

ii) $y = \sqrt{x^2 - 4x + 4} = \min \begin{cases} x = \frac{4}{2} = 2 \\ y = 0 \end{cases} \Rightarrow \sqrt{[0, +\infty)} \Rightarrow R_f \in [0, +\infty)$

$$b) \sqrt{-9t^2 + 6t + 1} \quad \text{max} \quad \begin{cases} -\frac{t}{-4} = 1 \\ y \leq 14 \end{cases} \rightarrow \sqrt{(-\infty, 14]} \rightarrow R_f = [0, 14]$$

$$1 - \sqrt{1}$$

Subject:

Year : Month : Day : ()

$$\text{ii) } y = x^{\frac{1}{2}} + \frac{1}{x^{\frac{1}{2}}} + 1 \quad R_f = \mathbb{R}$$

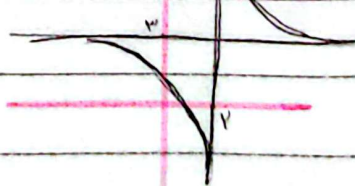
$$\text{ب) } y = \sqrt{x^2 + 4x + 4} \Rightarrow \sqrt{1x} = [0, +\infty)$$

$$\text{ii) } y = \frac{x+1}{x-1} = \mathbb{R} - \left\{ \frac{1}{1} \right\} \Rightarrow R_f = \mathbb{R} - \left\{ \frac{1}{1} \right\}$$

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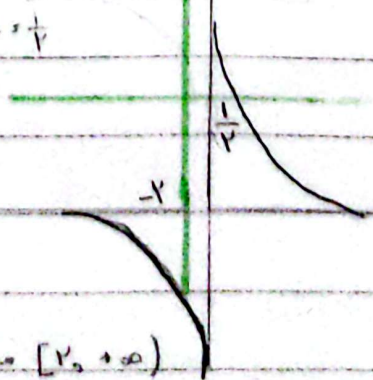
$$\text{ب) } y = \sqrt{\frac{x+1}{x+3}} \cdot \sqrt{\mathbb{R} - \left\{ \frac{1}{1} \right\}} = [0, +\infty) - \left\{ \frac{1}{1} \right\}$$

$$\text{ii) } y = \frac{x+1}{x-1} \quad \begin{cases} x = 1 \\ y = 1 \end{cases}$$



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$$\text{ب) } y = \frac{x-1}{1-x} = \begin{cases} x = 1 \text{ or } x = \frac{1}{1} \\ y = -1 \end{cases}$$



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$$\text{ii) } y = \cos^2 x + \frac{1}{\cos^2 x} = R_f = [1, +\infty)$$

$$\text{ب) } y = \sqrt{\frac{x^2+1}{x}} = \sqrt{\frac{x+1}{x}} \Rightarrow R_f = (-\infty, \sqrt{-1}] \cup [\sqrt{1}, +\infty)$$

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