

نام و نام خانوادگی محمد باغبانی پاسخنامه تشریحی تکلیف شماره ۹ ... کلاس دهم (نیمه اول)

$$\text{الف) } y = x^2 - 8 \rightarrow x^2 = y + 8 \rightarrow x = \pm \sqrt{y + 8} \rightarrow y + 8 \geq 0 \rightarrow y \geq -8$$

$$\rightarrow R_f = [-8, +\infty)$$

$$\text{ب) } y = x^2 + 1 \rightarrow x^2 = y - 1 \rightarrow x = \pm \sqrt{y - 1} \rightarrow R_f = \mathbb{R}$$

$$\text{الف) } y = x^2 - 4x + 7 \rightarrow y = (x-2)^2 + 3 \rightarrow (x-2)^2 = y-3 \rightarrow x-2 = \pm \sqrt{y-3}$$

$$\rightarrow y-3 \geq 0 \rightarrow y \geq 3 \rightarrow \boxed{Rf = [3, \infty)}$$

$$x = \pm \sqrt{y-3} + 2$$

$$\text{ب) } y = x^2 - 8x + 1 \rightarrow y = (x-4)^2 - \frac{15}{4} \rightarrow x-4 = \pm \sqrt{y + \frac{15}{4}} \rightarrow x = \pm \sqrt{y + \frac{15}{4}} + 4$$

$$y + \frac{15}{4} \geq 0 \rightarrow y \geq -\frac{15}{4} \rightarrow \boxed{Rf = [-\frac{15}{4}, +\infty)}$$

$$1) y = \frac{x^r + r}{x^r - r} \rightarrow y \rightarrow - \frac{-ry - r}{y - 1} = x^r = \frac{ry + r}{y - 1} \rightarrow x = \pm \sqrt{\frac{ry + r}{y - 1}}$$

$$\rightarrow Rf = (-\infty, -\frac{r}{r}] U (1, +\infty)$$

$$2) y = \frac{r|u| + 1}{|u| - \varepsilon} \rightarrow y \rightarrow - \frac{-\varepsilon y - 1}{y - r} = |u| = \frac{\varepsilon y + 1}{y - r} \rightarrow \frac{-\frac{1}{\varepsilon}}{+\phi - \frac{r}{\phi + 1}}$$

$$Rf = (-\infty, -\frac{1}{\varepsilon}] U (r, +\infty)$$

$-\frac{r}{r}$	1
$+\phi -$	$\frac{r}{\phi + 1}$
	∞

$$R_f? \rightarrow y = \frac{1}{n^2 - \varepsilon n} \rightarrow y n^2 - \varepsilon n y = 1 \rightarrow y n^2 - \varepsilon n y - 1 = 0$$

$$\rightarrow n = \frac{\varepsilon y + \sqrt{14y^2 + \varepsilon y}}{2y} \rightarrow 14y^2 + \varepsilon y \geq 0 \rightarrow \varepsilon y(\varepsilon y + 1) \geq 0 \rightarrow \frac{-1}{\varepsilon} \leq y \leq 0$$

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

$$ii) y = n^2 - 4n + 2 \xrightarrow{\text{min } \Delta} \text{ent} \left| \frac{-b}{2a} \right| = \left| \frac{4}{2} = 2 \right| \rightarrow R_f = [-1, +\infty)$$

$$iii) y = -n^2 + \varepsilon n + 2 \xrightarrow{\text{Max } \Delta} \text{ent} \left| \frac{-b}{2a} \right| = \left| \frac{-\varepsilon}{-2} = \frac{\varepsilon}{2} \right| \rightarrow R_f = (-\infty, 4]$$

$$\text{الف) } y = \sqrt{n^2 + 4n + 4} \xrightarrow{\text{min/b}} \text{ext} \left| \begin{array}{l} \frac{y}{n} = 2 \\ 4 - 1n + 2 = -V \end{array} \right. \longrightarrow = [-V, +\infty)$$

$$\longrightarrow \sqrt{[-V, +\infty)} = R_f = [0, +\infty)$$

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$$\text{ب) } y = \sqrt{-n^2 + 4n + 4} \xrightarrow{\text{min/b}} \text{ext} \left| \begin{array}{l} \frac{-y}{-n} = 2 \\ -4 + 1n + 4 = 14 \end{array} \right. \longrightarrow = (-\infty, 14]$$

$$\longrightarrow \sqrt{(-\infty, 14]} = R_f = [0, \sqrt{14}]$$

$$\text{الف) } y = \sqrt[n]{n^2 + 4n + 4} \xrightarrow{\text{min/b}} R_f = \mathbb{R}$$

$$\text{ب) } \sqrt[n]{n^2 + 4n + 4} \xrightarrow{\text{min/b}} R_f = \sqrt{\mathbb{R}} \longrightarrow R_f = [0, +\infty)$$

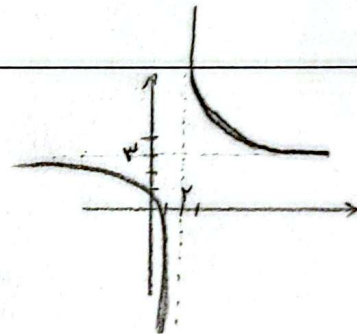
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$$\text{الف) } y = \frac{cn+1}{n-2} \longrightarrow R_f = \mathbb{R} - \left\{ \frac{a}{c} \right\} = [\mathbb{R} - \{2\}]$$

$$\text{ب) } y = \sqrt{\frac{cn+1}{n-2}} \longrightarrow R_f = \sqrt{\mathbb{R} - \{2\}} \longrightarrow R_f = [0, +\infty) - \{2\}$$

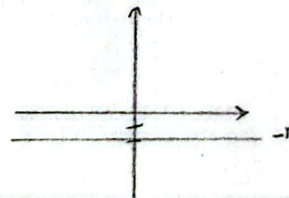
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$$\text{الف) } y = \frac{r^{n+1}}{n-2} \xrightarrow{\text{min/b}} \begin{array}{l} \frac{r}{1} = 2 \\ n-2 = 0 \longrightarrow n=2 \end{array}$$



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$$\text{ب) } y = \frac{cn-2}{1-2n} = \frac{2(n-1)}{-1(n-1)} = -2$$



$$\text{الف) } y = \cos^n n + \frac{1}{\cos^n n} \longrightarrow \cos^n n \geq 0 \longrightarrow R_f = [1, +\infty)$$

$$\text{ب) } y = \sqrt{\frac{n^2+1}{n}} = \sqrt{n + \frac{1}{n}} \longrightarrow \sqrt{(-\infty, -r]} \cup [r, +\infty)$$

$$\longrightarrow R_f = (-\infty, \sqrt{-r}] \cup [\sqrt{r}, +\infty)$$

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