

۱۹، ۷۵

سپتامبر

ایان معاریان پلاس

SUBJECT

Year: Month: Day:

Page: ( )

۱۷۵

الف)  $y = x^3 - 3x^2 + 3x = (x-1)^3 + 1 \rightarrow y-1 = (x-1)^3 \rightarrow x-1 = \sqrt[3]{y-1} \rightarrow x = \sqrt[3]{y-1} + 1 \rightarrow R_f = \mathbb{R}$  ✓

ب)  $y^2 - 4y = 1 \rightarrow x = \frac{2y + \sqrt{4y^2 + 4}}{2} \rightarrow 4y^2 + 4 \geq 0 \rightarrow y \geq -1 \rightarrow R_f = [1, +\infty)$  ✓

الف)  $\frac{b}{1a} = \frac{f}{p} = 2 \xrightarrow{x=2} y = 9 \xrightarrow{a > 0} R_f = [9, +\infty)$  ✓

ب)  $\frac{b}{1a} = \frac{-y}{-p} = 3 \xrightarrow{n=3} y = 12 \xrightarrow{a < 0} R_f = (-\infty, 12]$  ✓

ج)  $\frac{b}{1a} = \frac{f}{p} = 2 \xrightarrow{x=2} y = -1 \xrightarrow{a > 0} R_f = [-1, +\infty) \rightarrow R_f = [0, +\infty)$  ✓

د)  $\frac{b}{1a} = \frac{-f}{-p} = 3 \xrightarrow{n=3} y = 9 \xrightarrow{a < 0} R_f = (-\infty, 9] \rightarrow R_f = [0, 3]$  ✓

الف)  $R_f = \mathbb{R}$  ✓ ب)  $R_f = \mathbb{R}$  ✓ ج)  $R_f = \mathbb{R} = [0, +\infty)$  ✓ د)  $y = T \rightarrow R_f = [0, +\infty)$  ✓

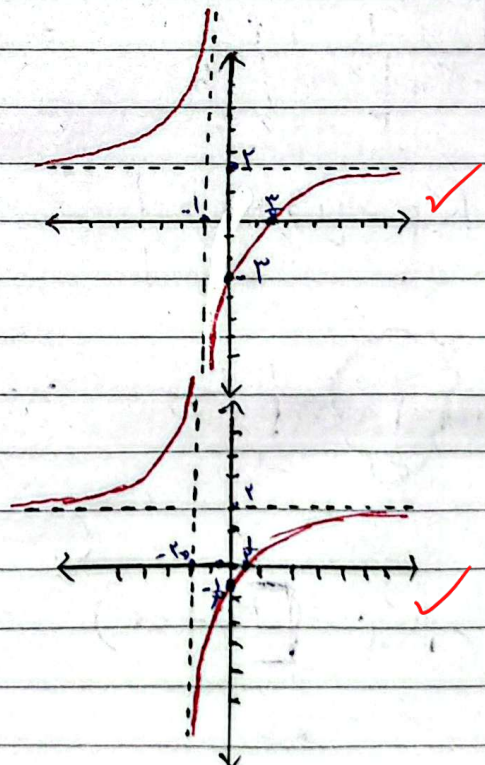
الف)  $ad \neq bc \rightarrow$  همگرا نیست  $\rightarrow R_f = \mathbb{R} - \{3\}$  ✓ ب)  $ad \neq bc \rightarrow$  همگرا نیست  $\rightarrow R_f = \mathbb{R} - \{3\}$  ✓

الف)  $ad \neq bc \rightarrow$  عبارت اول را با ۱  $\rightarrow R_f = [0, +\infty)$  ✓ ب)  $ad \neq bc \rightarrow$  عبارت اول را با ۱  $\rightarrow R_f = [0, +\infty)$  ✓

$\frac{a}{c} =$  میانصفت و  $\frac{a}{c} =$  ریشه خارج = میانصفت

الف)  $ad \neq bc$  و  $\frac{a}{c} = 2$  و  $\frac{a}{c} = -1$  ریشه خارج

ب)  $ad \neq bc$  و  $\frac{a}{c} = 2$  و  $\frac{a}{c} = -2$  ریشه خارج



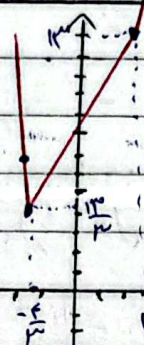
$$\text{الف) } R_f = (-\infty, -1] \cup [1, +\infty) \quad \checkmark$$

$$\text{ب) } \sqrt{x} + \frac{1}{\sqrt{x}} \rightarrow R_f = (-\infty, -1] \cup [1, +\infty) \quad \checkmark$$

$$\text{الف) } x^2 + \frac{1}{x^2} \rightarrow R_f = [-1, +\infty) \quad \checkmark$$

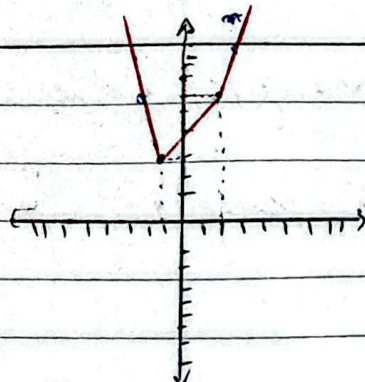
$$\text{ب) } \frac{x^2 + 1}{\sqrt{x^2 + 1}} = \sqrt{x^2 + 1} \rightarrow R_f = [1, +\infty) \quad \checkmark$$

$$\begin{array}{c|c|c} -\frac{f}{x} & x & f \\ \hline -\frac{1}{x-1} & x+1 & x+1 \\ \hline \frac{1}{x} = \frac{1}{x} & 1 & 1 \end{array} \quad \begin{array}{l} x=1 \rightarrow y=1 \\ x=-1 \rightarrow y=1 \end{array}$$



$$\text{الف) } \frac{-1}{x-1} \rightarrow R_f = [1, +\infty) \quad \checkmark$$

$$R_f = [1, +\infty) \quad \checkmark$$



$$\text{ب) } \frac{-1}{x-1} \rightarrow R_f = [1, +\infty) \quad \checkmark$$

$$R_f = [1, +\infty) \quad \checkmark$$

