

$$y = \frac{x^2 + f}{x^2 - 1} \rightarrow x^2 = \frac{-y - f}{y - 1} = \frac{y + f}{y - 1}$$

$$\rightarrow x = \pm \sqrt{\frac{y + f}{y - 1}} \rightarrow \frac{y + f}{y - 1} \geq 0$$

$$R_f = (-\infty, -f] \cup (1, +\infty)$$

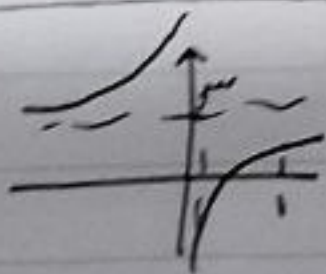
$$Q = x^2 \rightarrow \begin{cases} x^2 = 0 \rightarrow y = -f \\ x^2 \rightarrow \infty \rightarrow y = 1 \end{cases} \xrightarrow[\text{صفر شود}]{\text{مقر 2 می تواند}} R_y = (-\infty, -f] \cup (1, +\infty)$$

$$y = \frac{2 \sin x + f}{\sin x - 1} \xrightarrow{\sin x = -1} \frac{-2 + f}{-1 - 1} = \frac{f}{-2} = -\frac{f}{2}$$

$$\xrightarrow{\sin x = 1} \frac{2 + f}{1 - 1} = \frac{f}{0} = \infty$$

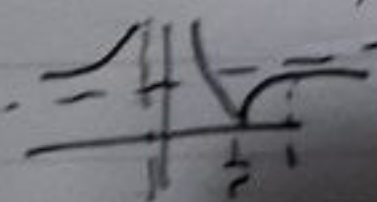
$$R_f = [-\frac{f}{2}, \infty)$$

$$y = \left| \frac{2x - 1}{x} \right|$$

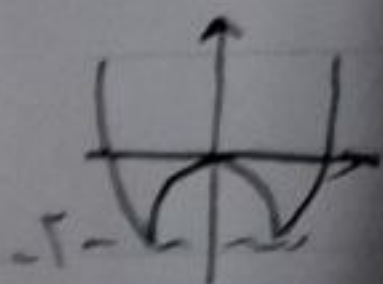


$x=0$: معاند قائم
 $y = \frac{f}{2}$: معاند افقی

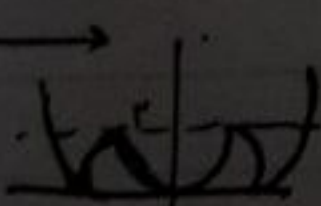
$$R_f = [\frac{f}{2}, +\infty)$$



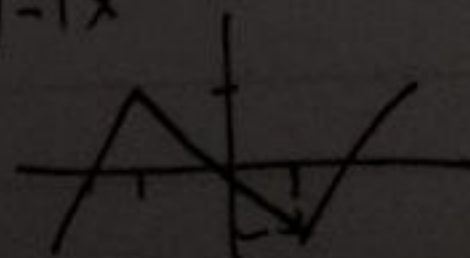
$$y = \sqrt{\frac{9x-18}{x^2-1}} = \sqrt{\frac{9(x-2)}{(x-1)(x+1)}} = \sqrt{\frac{9}{x+1}} = \frac{3}{\sqrt{x+1}} \rightarrow R_f = \{x \mid x > -1\}$$



$f(x)$



$$y = x|x| - 2x$$



• dotnote

$$y = |f(x)| + 1$$

$$R_f = \mathbb{R}$$

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$$R_t = \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] + \infty$$

$$\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R}$$

$$\frac{\sqrt{1 + \frac{1}{R^2}}}{\sqrt{1 + \frac{1}{R^2}}} + \frac{1}{\sqrt{1 + \frac{1}{R^2}}} = \frac{\sqrt{1 + \frac{1}{R^2}}}{\sqrt{1 + \frac{1}{R^2}}} + \frac{1}{\sqrt{1 + \frac{1}{R^2}}}$$

$$Y = \frac{\sqrt{1 + \frac{1}{R^2}}}{\sqrt{1 + \frac{1}{R^2}}}$$

(2)

$$R_t = \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] + \infty$$

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$$R_t = \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] + \infty$$

$$Y = \sqrt{1 + \frac{1}{R^2}}$$

(1)

$$R_t = \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] + \infty$$

$$Y = \frac{\sqrt{1 + \frac{1}{R^2}}}{\sqrt{1 + \frac{1}{R^2}}} + \frac{1}{\sqrt{1 + \frac{1}{R^2}}}$$

(1)

$$R_t = (-\infty, +\infty)$$

$$\log(-\infty, +\infty) = \log(-\infty, +\infty)$$

$$\log(x^2 - y^2 + \sqrt{x^2 + y^2})$$

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$$R_t = \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] + \infty$$

$$Y = \sqrt{1 + \frac{1}{R^2}} + \frac{1}{\sqrt{1 + \frac{1}{R^2}}}$$

(2)

$$R_t = \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] + \infty$$

$$Y = \sqrt{1 + \frac{1}{R^2}} + \frac{1}{\sqrt{1 + \frac{1}{R^2}}}$$

(1)

$$R_t = \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] \left[\sqrt{1 + \frac{1}{R^2}} + \frac{1}{R} \right] + \infty$$

$$Y = \sqrt{1 + \frac{1}{R^2}} + \frac{1}{\sqrt{1 + \frac{1}{R^2}}}$$

(1)

$$R_f = (\infty - V) \left[\frac{1}{V} \right]_{V \rightarrow \infty}$$

$$\frac{1}{V} - \frac{1}{V} \geq 0 \rightarrow \frac{1}{V} - \frac{1}{V} \geq 0 \rightarrow \frac{1}{V} - \frac{1}{V} \geq 0$$

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$$\frac{1+x}{1+x^2} \rightarrow \frac{1+x}{1+x^2} \rightarrow \frac{1+x}{1+x^2}$$

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