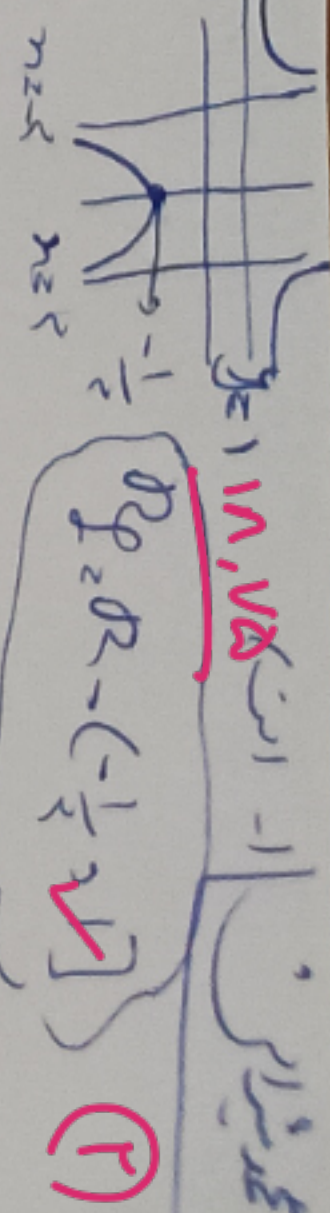


$$\lim_{x \rightarrow 1} \frac{x^2+1}{x-1} = \lim_{x \rightarrow 1} \frac{1}{x-1} \Rightarrow R_f = [\infty + \infty)$$

$$(1) \quad \lim_{x \rightarrow 1} \frac{x^2+1}{x-1} = \lim_{x \rightarrow 1} \frac{1}{x-1}$$



$$x^2 \rightarrow 1 \rightarrow \infty \rightarrow D_f = \mathbb{R}$$

$$(2) \quad x^2 \rightarrow 1 \rightarrow \infty \rightarrow D_f = \mathbb{R}$$

$$\lim_{x \rightarrow \infty} f(x) = \frac{x^2}{x^2+1} = 1 \Rightarrow R_f = [0, 1)$$

$$\lim_{x \rightarrow \infty} \frac{x^2+1}{x^2} = \lim_{x \rightarrow \infty} \frac{1 + \frac{1}{x^2}}{1} = 1$$

$$\lim_{x \rightarrow \infty} \frac{1}{x^2} = 0 \Rightarrow R_f = [0, 1)$$

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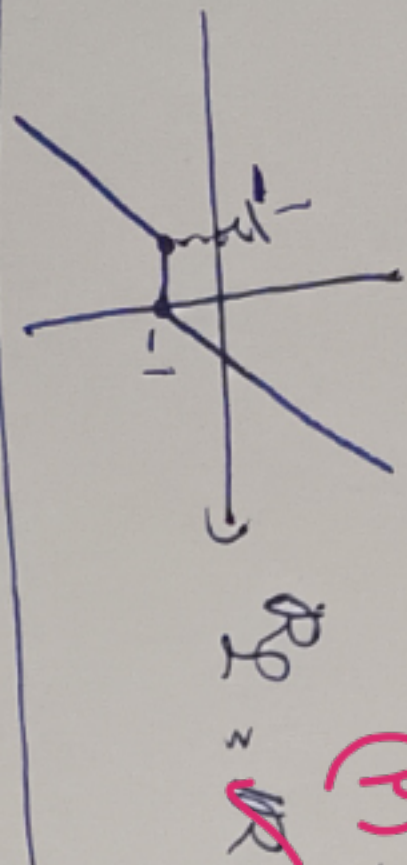
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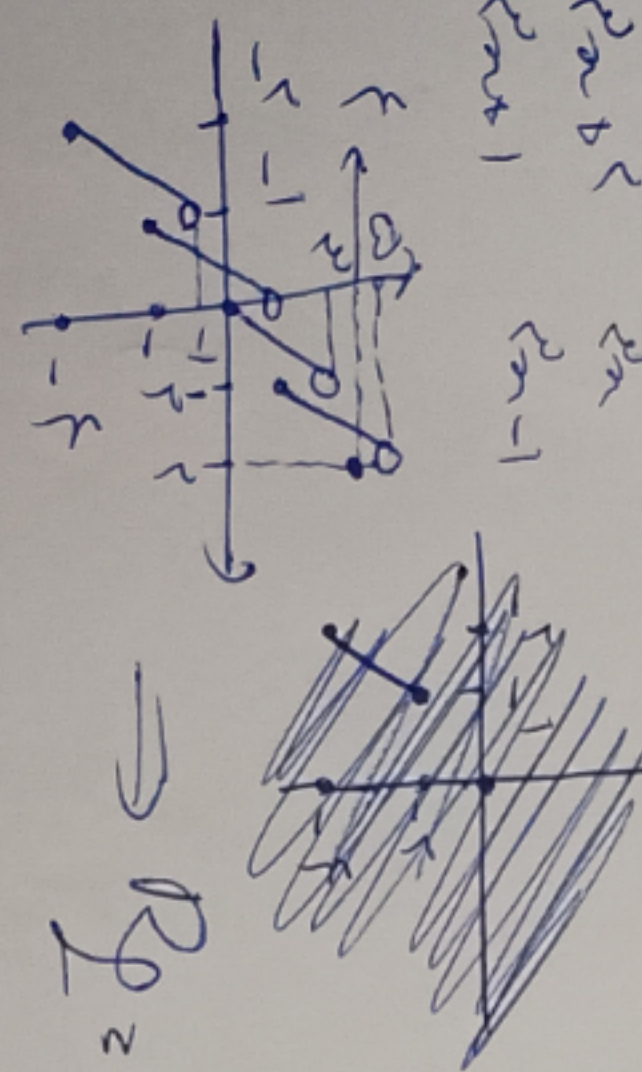
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$$(1) \quad \lim_{x \rightarrow \infty} \frac{1}{x^2+1} = 0 \Rightarrow R_f = [0, 1)$$

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