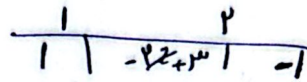


$$y = Kx \Rightarrow K = -1 \Rightarrow K = -\frac{1}{x}$$



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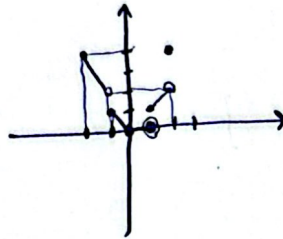
الف) $x < -1 \Rightarrow y = -x^2$

$-1 < x < 0 \Rightarrow y = -x$

$0 < x < 1 \Rightarrow y = 0$

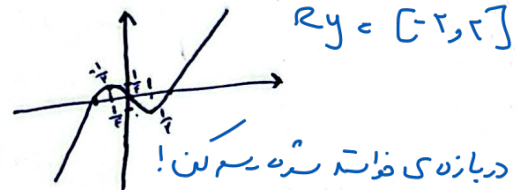
$1 < x < 2 \Rightarrow y = x$

$x = 2 \Rightarrow y = x^2$



$R_y = [0, 4] - \{1\}$

ب) $y = \begin{cases} x & x^2 - x \\ x & -x^2 - x \end{cases}$



$R_y = [-2, 2]$

دایره‌ای ضلعه سه برابری!

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$$y = \frac{x+1+x+1}{x^2+x} = \frac{2(x+1)}{x(x+1)} = \frac{2}{x} \xrightarrow{x \neq -1} R_f = R - \left\{ \frac{2}{-1}, 0 \right\} = R - \{-2, 0\}$$

$a \times b = -2 \times 0 = -2$ ✓

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$$f(x) = \frac{(\sqrt{x}-1)(\sqrt{x}-3)}{(\sqrt{x}-1)^2} = \frac{\sqrt{x}-3}{\sqrt{x}-1} \quad \begin{matrix} \sqrt{x}=0 \Rightarrow 3 \\ \sqrt{x}=+\infty \Rightarrow 1 \end{matrix}$$

$R_f = [3, +\infty) \cup (-\infty, 1)$ ✓

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$$f(x) = \frac{(x+1)(x-1)(x+1)}{(x-1)(x+1)} = x+1 \xrightarrow{x \neq 1, -1} R_f = R - \{1, -1\}$$

$\Rightarrow 1+1 = 2$

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