

(b)

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$$y = x^2 - 4x + 1 = (x-1)^2 - 1 = y \Rightarrow \begin{cases} x-1 = \sqrt{1+y} \\ x-1 = -\sqrt{1+y} \end{cases} \Rightarrow \begin{cases} x = 1 + \sqrt{1+y} \\ x = 1 - \sqrt{1+y} \end{cases}$$

Subject:

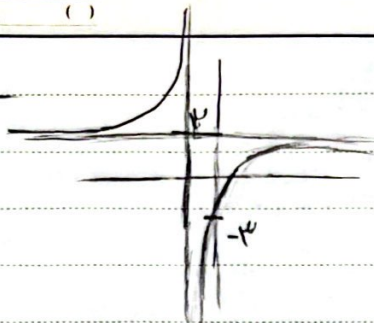
Year. Month. Date. ()

ا) $y = \frac{x-1}{x+1}$

$\frac{a}{c} = \frac{1}{1} = 1$

$x=0 \rightarrow y = -1$

$x+1 \rightarrow x = -1$

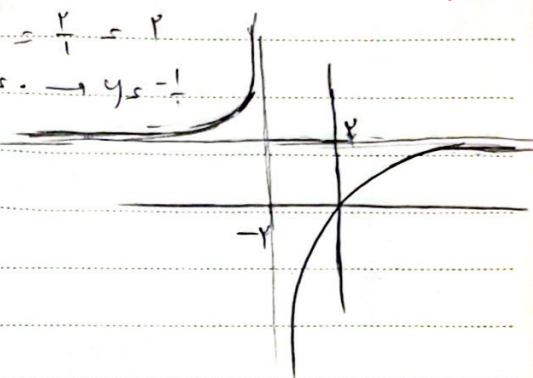


ب) $\frac{x-1}{x+1}$

$x+1 \rightarrow x = -1$

$\frac{a}{c} = \frac{1}{1} = 1$

$x = -1 \rightarrow y = -1$



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ا) $y = \sin x + \frac{1}{\sin x}$

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

ب) $y = \frac{x^2+1}{x^2} = 1 + \frac{1}{x^2}$

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

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ج) $y = \frac{\sqrt{x^2+1}}{\sqrt{x}} \rightarrow \sqrt{x} + \frac{1}{\sqrt{x}}$

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

د) $\sqrt{x} + \frac{1}{\sqrt{x}}$

$R_f = [1, +\infty)$

ا) $y = x^2 + \frac{1}{x^2+1}$

$R_f = [\frac{1}{2}, +\infty)$

ب) $y = \frac{x^2+1}{\sqrt{x^2+2}}$

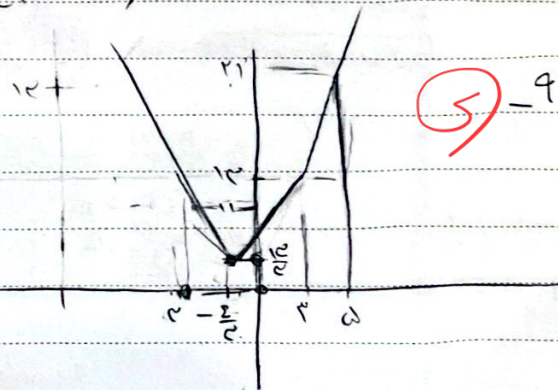
$R_f = [\frac{2}{3}, +\infty)$

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$y = |x-1| + |x+2|$

$R_f = [\frac{3}{2}, +\infty)$

$-x+1-x-2$	$-x+1+x+2$	$x-1+x+2$
$-2x-1$	$x+3$	$2x+1$
$-x < -\frac{1}{2}$	$x > -1$	$x > -1$

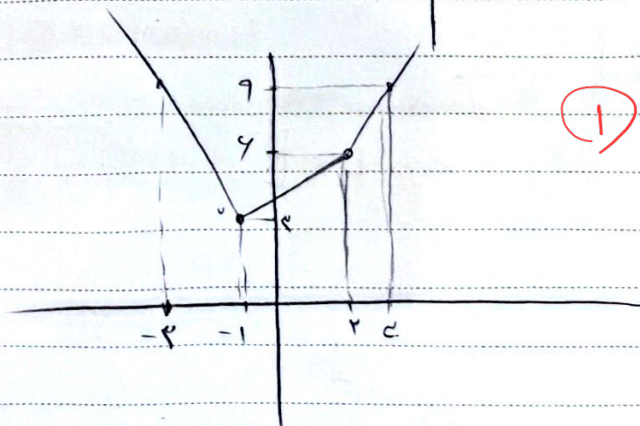


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$y = |x-1| + |x+1|$

$R_f = [1, +\infty)$

$-x+1-x-1$	$-x+1+x+1$	$x-1+x+1$
$-2x$	$x+2$	$2x$
$-x < 0$	$x > -1$	$x > -1$

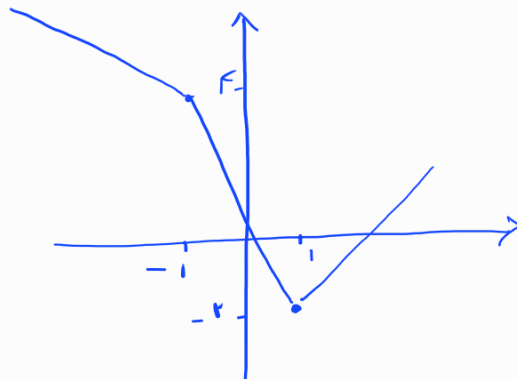


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$$\begin{array}{c} -1 \qquad \qquad \qquad 1 \\ \hline -x+1 \quad | \quad -x+1 \quad | \quad x-1 \end{array}$$

$$R = [-1, +\infty)$$



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