

1- $x^2 = y+5 \quad x = \pm\sqrt{y+5} \quad R = [-5, +\infty)$

2- $x^2 = y-1 \quad x = \pm\sqrt{y-1} \quad R: R$

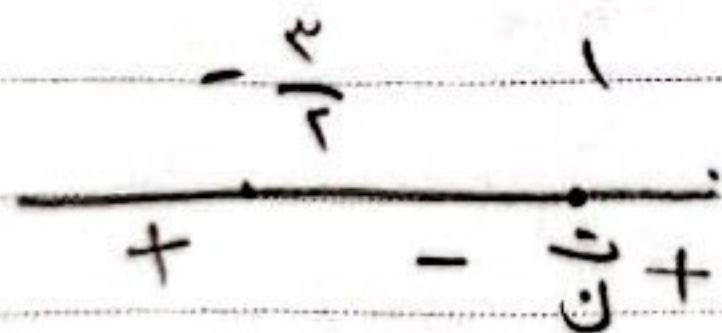
3- $y = (x^2 - 2x + 2) \rightarrow y - 2 = (x-1)^2 \rightarrow \pm\sqrt{y-2} = x-1$

$\pm\sqrt{y-2} = x-1 \quad R: [2, +\infty)$

4- $y = (x - \frac{5}{2})^2 - \frac{11}{2} = \frac{11}{2} - \frac{11}{2} + y \quad R: [-\frac{11}{2}, +\infty)$

$\pm\sqrt{y + \frac{11}{2}} = x - \frac{5}{2}$

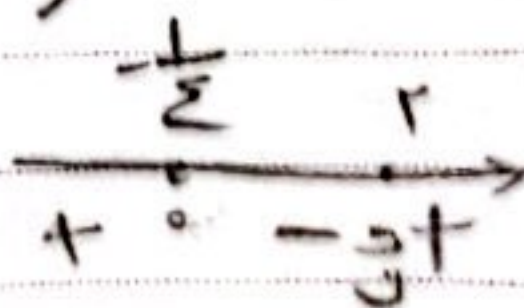
5- $yx^2 - 2y = x^2 + 2 \quad (yx^2 - x^2) = 2y + 2$
 $x^2(y-1) = 2y+2 \quad x = \pm\sqrt{\frac{2y+2}{y-1}}$



$R: (-\infty, -\frac{2}{3}] \cup (1, +\infty)$

6- $y|x| = 2y + 2|x| + 1 \quad y|x| - 2|x| = 2y + 1$

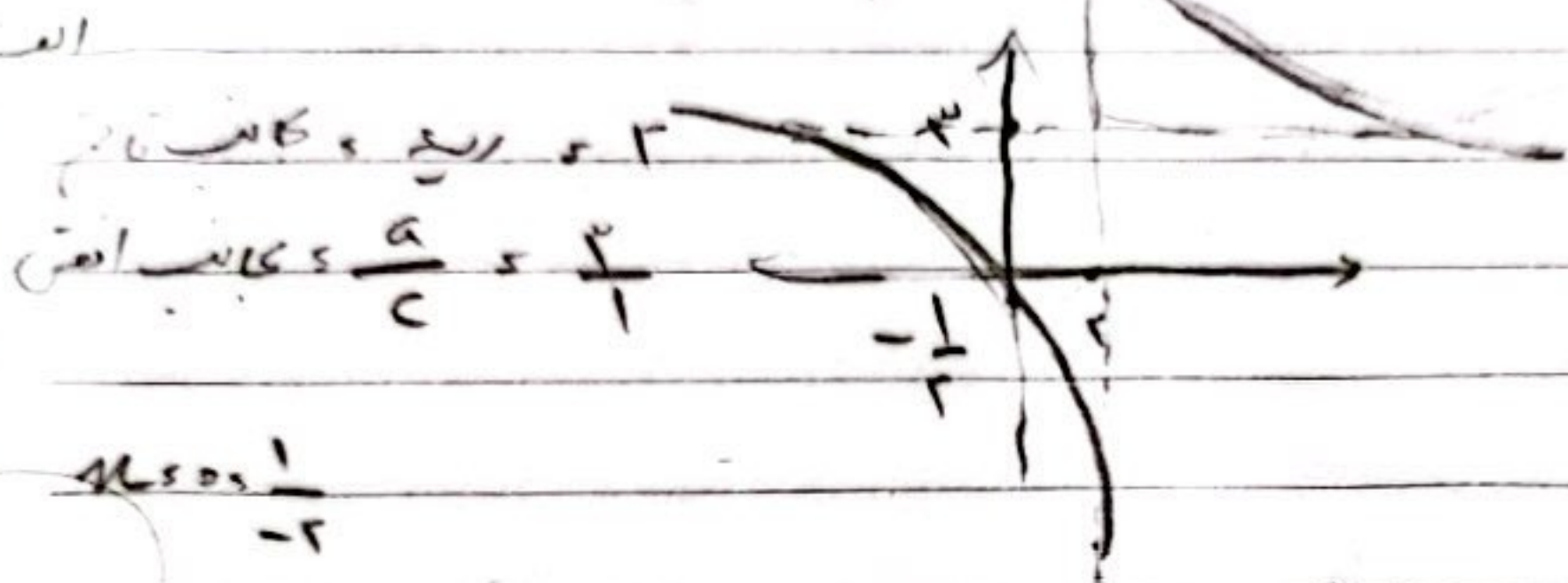
$|x| \frac{(y-2)}{(y-2)} = \frac{2y+1}{y-2}$



$R: (-\infty, -\frac{1}{2}] \cup (2, +\infty)$

الف $R = \mathbb{R} - \left\{ \frac{1}{2} \right\}$

$\sqrt{\mathbb{R} - \{2\}} = [0, \infty) - \{2\}$



$x \leq \frac{1}{2}$

ب) $ad = bc$ $\frac{x-2}{-2x+1}$ $R = \{ -2 \}$

$\frac{-2(x-1)}{-2x}$

$R = [2, +\infty)$

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ب) $\sqrt{x} + \frac{1}{x} \rightarrow R = (-\infty, 1] \cup [2, +\infty)$

$$x + \frac{1}{y} = x^2 - x + 2 \quad x = 2, y = \sqrt{x + \frac{1}{y}} + 1 \quad -x$$

$$x + \frac{1}{y} = (x-1)^2 \quad x = \pm \sqrt{x + \frac{1}{y}} + 1 \quad (\infty, -1] \cup [-\frac{1}{2}, \infty)$$

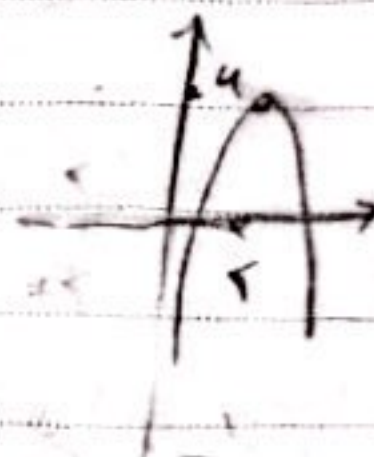
$$x + \frac{1}{y} \leq 0 \quad \frac{1}{y} \leq -x$$

$$\text{min} \rightarrow x = \frac{-b}{2a} = \frac{-9}{2} = -4.5 \quad R = [-1, \infty) \quad -5$$

$$y = 9 - 11 + 2x = -2 \quad \text{Graph of } y = 2x - 2$$

$$\text{max} \rightarrow x = \frac{-b}{2a} = \frac{-9}{2} = -4.5$$

$$y = 9 - 11 + 2x = -2 \quad R = (-\infty, 4.5]$$



$$\text{min} \rightarrow x = \frac{-b}{2a} = \frac{-9}{2} = -4.5 \quad \sqrt{[-1, \infty)} \rightarrow R = [0, +\infty)$$

$$\text{max} \rightarrow x = \frac{-b}{2a} = \frac{-9}{2} = -4.5 \quad -x + 1 + 1 = 1 \quad \sqrt{(-\infty, 15]}$$

$$R = [0, \sqrt{15}]$$

$$\text{if } R \in \mathbb{R} \quad \sqrt{(\mathbb{R})} \rightarrow R = [0, \infty)$$