

ان) $y \leq x^2 - 5 \Rightarrow y + 5 = x^2 \Rightarrow x = \sqrt{y+5} \Rightarrow R = [-5, +\infty)$ -1

-.) $y \leq x^2 + 1 \Rightarrow y - 1 \leq x^2 \Rightarrow \sqrt{y-1} \leq x \Rightarrow R \subseteq \mathbb{R}$

ان) $y \leq x^2 - 4x + 7 \Rightarrow y \leq x^2 - (2x + 2) + 7 \Rightarrow y \leq (x-2)^2 + 3 \Rightarrow y-3 \leq (x-2)^2$
 $\Rightarrow \pm \sqrt{y-3} + 2 \leq x \Rightarrow R \subseteq [2, +\infty)$

-.) $y = x^2 - 4x + 1 \Rightarrow x^2 - 4x + 1 = y \Rightarrow x^2 - 4x + 4 - 4 + 1 = y \Rightarrow (x-2)^2 - 3 = y$
 $\Rightarrow (x-2)^2 = y+3 \Rightarrow \pm \sqrt{y+3} + 2 = x \Rightarrow R = [-3, +\infty)$

ان) $y \leq \frac{x^2 + 3}{x^2 - 2} \Rightarrow y(x^2 - 2) \leq x^2 + 3 \Rightarrow x^2 - yx^2 \leq y + 3 \Rightarrow x^2(1-y) \leq y+3$

$x^2 \leq \frac{y+3}{1-y} \Rightarrow x \leq \pm \sqrt{\frac{y+3}{1-y}} \Rightarrow R \subseteq (1, +\infty)$

-.) $\frac{x|x|+1}{|x|-5} = y \Rightarrow y(|x|-5) \leq x|x|+1 \Rightarrow y|x|-5y \leq x|x|+1$

$\Rightarrow |x|(y-5) \leq y+1 \Rightarrow |x| \leq \frac{y+1}{y-5} \Rightarrow R \subseteq (5, +\infty)$

ان) $y \leq x^2 - 4x + 7 \Rightarrow \min \left| \frac{x-b}{x-a} \right| \leq \frac{b-a}{x-v} \Rightarrow R \subseteq [-v, +\infty)$? - 5

-.) $y \leq x^2 - 4x + 7 \Rightarrow \frac{\max}{\max} \left| \frac{x-b}{x-a} \right| \leq \frac{b-a}{x-v}$

ان) $y \leq \sqrt{x^2 - 4x + 7} \Rightarrow \min \left| \frac{x-b}{x-a} \right| \leq \frac{b-a}{x-v} \Rightarrow R \subseteq \sqrt{[-v, +\infty)} \Rightarrow R \subseteq [0, +\infty)$ - 7

-.) $y \leq \sqrt{-x^2 + 6x + 10} \Rightarrow \max \left| \frac{x-b}{x-a} \right| \leq \frac{b-a}{x-v} \Rightarrow R \subseteq \sqrt{(-\infty, 10]} \Rightarrow R \subseteq [0, 10]$

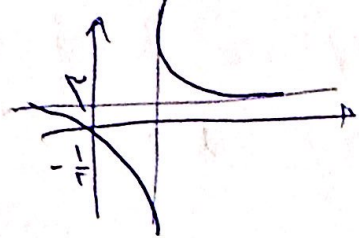
ان) $R_f \subseteq \mathbb{R}$ - 7

-.) $R_f \subseteq [0, +\infty)$

ان) $\frac{x^2 + 1}{x-2} \Rightarrow R - \{2\}$ - 1

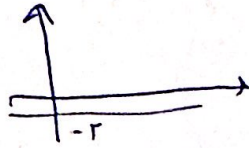
-.) $y \leq \frac{x^2 + 1}{x-2} \Rightarrow R_f = [0, +\infty) - \{2\}$

الز) $y = \frac{r_n + 1}{n - 1}$



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ب) $y = \frac{r_n - 1}{1 - r_n}$



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الز) $y = \cos r_n + \frac{1}{\cos r_n} \Rightarrow R_f = [r_0 + \infty)$

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ب) $\sqrt[n]{n^2 + 1} \Rightarrow R_f = (-\infty, -1] \cup [1, +\infty)$