

$$n \geq 2 \rightarrow 2n - 1 \geq 0 \rightarrow y = 2n - 1 \rightarrow R = [1, +\infty)$$

$$n < 2 \rightarrow 2n - 1 < 0 \rightarrow y = -n + 1 \rightarrow R = (1, +\infty)$$

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

$$n \geq 2 \rightarrow y = n - 2 \rightarrow R = [-1, +\infty)$$

$$1 \leq n < 2 \rightarrow y = 1 - n \rightarrow R = (-1, 0]$$

$$0 \leq n < 1 \rightarrow y = 2 - 3n \rightarrow R = [0, 2]$$

$$n < 0 \rightarrow y = 3 - n \rightarrow R = (3, +\infty)$$

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

$$n \geq 1 \rightarrow 2n - 1 \geq 0 \rightarrow n = \frac{k+1}{2}$$

$$-2 \leq n < 1 \rightarrow -2n + 1 \geq 0 \rightarrow n = \frac{1-k}{2}$$

$$n < -2 \rightarrow -2n + 1 \geq 0 \rightarrow n = \frac{1-k}{2}$$

$$\textcircled{1} k \geq -3$$

$$\textcircled{2} -3 < k \leq 9$$

$$\textcircled{3} k > 9$$

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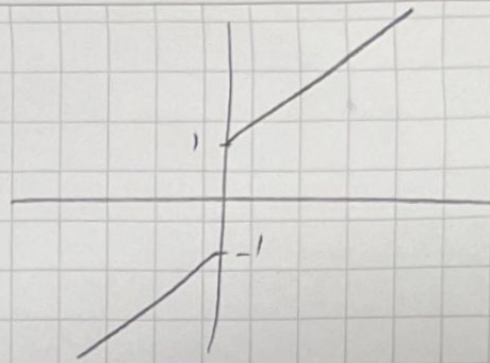
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$$k = -3$$

Subject:

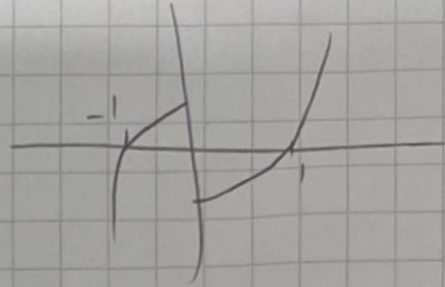
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الف) $n > 0 \rightarrow y = n + 1$
 $n < 0 \rightarrow y = n - 1$

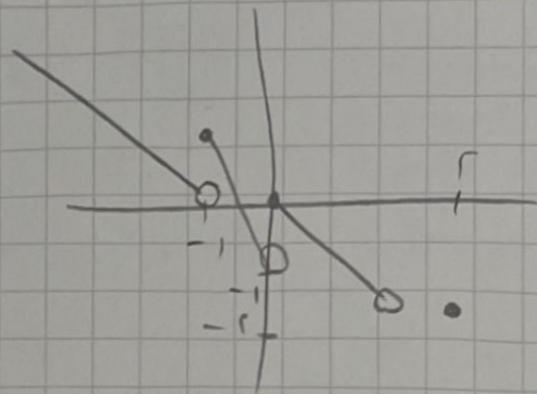


5-12

ب) $n > 0 \rightarrow n^2 - 1 = y$
 $n < 0 \rightarrow y = -n^2 + 1$

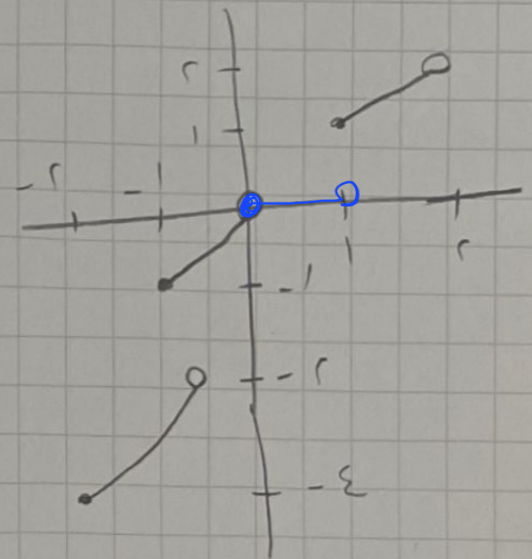


الف) $-2 \leq n < -1 \rightarrow [n] = -2$
 $-1 \leq n < 0 \rightarrow [n] = -1$
 $0 \leq n < 1 \rightarrow [n] = 0$
 $1 \leq n < 2 \rightarrow [n] = 1$



2-1, 1, 0, 0

ب) $-2 \leq n < -1 \rightarrow [n] = -1$
 $-1 \leq n < 0 \rightarrow [n] = 0$
 $0 \leq n < 1 \rightarrow [n] = 1$
 $1 \leq n < 2 \rightarrow [n] = 2$



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الف) $x_n - [x_n] \rightarrow [0, 1)$

- 5
(5)

ب) $x_n - \varepsilon[x_n] \rightarrow [0, \varepsilon)$

ج) $x_n - \varepsilon \left[\frac{x_n}{\varepsilon} \right] \rightarrow [0, \varepsilon)$

د) $[x_n] - x_n \rightarrow (-1, 0]$

الف) $R_f = [-\sqrt{13}, \sqrt{13}]$

- 4

(1, 10)

ب) $R_f = [-5, 5]$

ج) $\left[\begin{array}{l} \sqrt{19} \approx 4, 3 \\ -\sqrt{19} \approx -4, 3 \end{array} \right] R_f = \{ \times 4, \pm 0, \pm 2, \pm 3, \pm 4, \pm 5 \}$

د) $(\cos x - 2 \sin x) \geq 0 \rightarrow 0 \leq \sqrt{\quad} \leq \sqrt{5} \rightarrow R_f = [0, \sqrt{5}]$
 $\sin^2 x = [-\sqrt{5}, \sqrt{5}]$

الف) $\frac{\max}{\min} \frac{4}{1}$
 $\frac{b}{a} = \frac{1}{\varepsilon}$
 $\frac{1}{\varepsilon}$

$R_f = [-\frac{1}{\varepsilon}, 4]$

- 10

(10)

ب) $\frac{\max}{\min} \frac{V}{\frac{1}{\lambda}}$
 $\frac{1}{\lambda}$

$R_f = [\frac{V}{\lambda}, V]$

الف) $y = 1 + \frac{3 \cos^2 n}{(0, 3)} \rightarrow R_f = [1, 4]$

1,70 - 1

ب) $y = \frac{2 \sin 2n}{\sin n} = \frac{\sin 2n}{\sin n} \rightarrow R_f = [-1, 1] - \{0\}$

الف) $r^{-2} \leq y \leq 1 \rightarrow R_f = [\frac{1}{4}, 1]$

1,70 - 9

ب) $r^{-3} \leq y \leq 1 \rightarrow R_f = [0, 1] - \{0, 1\}$

الف) $\frac{(n-1)(n+2)}{n+2} = y \rightarrow n = -2 \rightarrow y = -9$

$R_f = \mathbb{R} - \{-9\}$

1,70

ب) $\frac{(n-1)(n^2+n+1)}{(n-1)} = y \rightarrow n^2+n+1 \rightarrow R = [\frac{5}{4}, +\infty)$

$R_y = [\frac{5}{4}, +\infty) - \{1\}$

