

طلب -
برای رسم دقتان

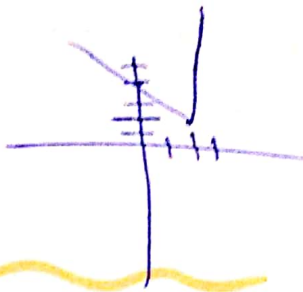
کارهای اضافی

①

$$R_f = [2, +\infty)$$

الف) $y = n + |2n - 2|$

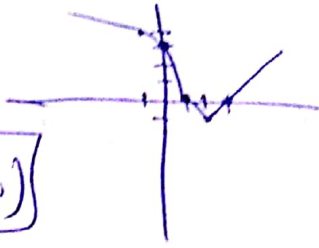
$$\begin{array}{c|c} 2-2n+2 & 2n+2n-2 \\ \hline -n+2 & 4n-2 \end{array}$$



ب) $y = |n-2| + |n-1| - |n|$

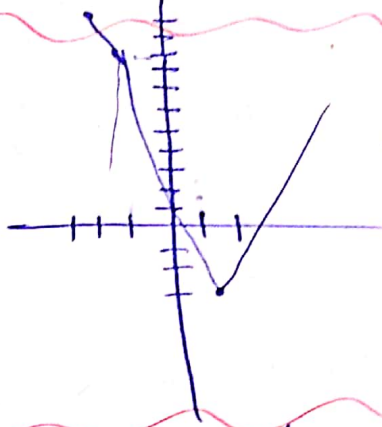
$$\begin{array}{c|c|c} 0 & 1 & 2 \\ \hline -n+2 & -2n+2 & -n+1 \end{array}$$

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



$y = |3n-3| - |n+2| = 2$

$$\begin{array}{c|c|c} -2 & 1 & 2 \\ \hline -3n+2 & -2n+1 & 2n-2 \end{array}$$



کتابچه دقتان یا رسم دقتان
با نمودار بر محور دقتان
دقتان = 1-3

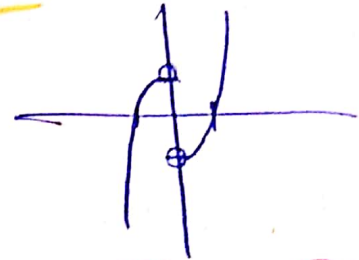
$$k = -2$$

③

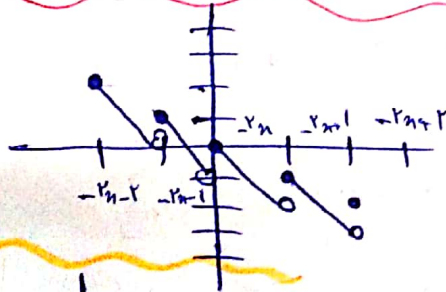
الف) $y = n + \frac{n}{|n|} \rightarrow \begin{cases} n+1 & n > 0 \\ n-1 & n < 0 \end{cases}$



ب) $y = n|n| - \frac{n}{|n|} \rightarrow \begin{cases} n^2-1 & n > 0 \\ -n^2+1 & n < 0 \end{cases}$

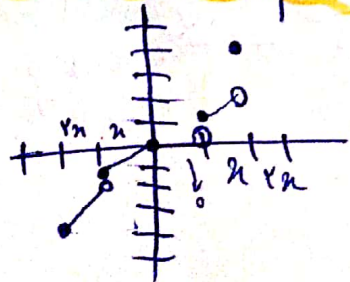


الف) $y = [n] - 2n$



④

ب) $y = [n] |n|$



(5)

$$\text{الف) } y = x_n - [x_n] \rightarrow R_f = [0, 1]$$

$$\text{ب) } y = x_n - \varepsilon [x_n] \rightarrow \varepsilon (x_n - [x_n]) \rightarrow R_f = [0, \varepsilon]$$

$0 \leq x_n - [x_n] < 1$

$$\text{ج) } y = x_n - a \left[\frac{x_n}{a} \right] \rightarrow a \left(\frac{x_n}{a} - \left[\frac{x_n}{a} \right] \right) \rightarrow R_f = [0, a]$$

$0 \leq \frac{x_n}{a} - \left[\frac{x_n}{a} \right] < 1$

$$\text{د) } [x_n] - x_n \rightarrow R_f = [-1, 0]$$

(6)

$$\text{الف) } y = r \sin n + r \cos n$$

$$-\sqrt{r^2 + r^2} \leq r \sin n + r \cos n \leq \sqrt{r^2 + r^2} \rightarrow R_f = [-\sqrt{r^2}, \sqrt{r^2}]$$

$$\text{ب) } y = r \sin n - r \cos n$$

$$r \sin n + (-r \cos n)$$

$$-\sqrt{r^2 + r^2} \leq r \sin n + (-r \cos n) \leq \sqrt{r^2 + r^2} \rightarrow R_f = [-a, a]$$

$$\text{ج) } y = [r \sin n + a \cos n]$$

$$-\sqrt{r^2 + a^2} \leq r \sin n + a \cos n \leq \sqrt{r^2 + a^2} \rightarrow R_f = \{-\sqrt{r^2 + a^2}, \sqrt{r^2 + a^2}\}$$

$$\text{د) } y = \sqrt{\cos n - r \sin n} = \sqrt{\cos n + (-r \sin n)}$$

$$-\sqrt{a} \leq \cos n + (-r \sin n) \leq \sqrt{a} \xrightarrow{\text{المطلوب}} R_f = [0, \sqrt{a}]$$

ا) $y = \sin^n x + \cos^n x$

$\sin x = 1 \rightarrow y = 1$

$\sin x = 0 \rightarrow y = 1$

$\sin x = \frac{\pi}{2} \rightarrow x$

$R_f = [0, 2]$

ب) $y = \sin^n x + \cos^n x$

$\sin x = 1 \rightarrow y = 1$

$\sin x = 0 \rightarrow y = 1$

$\sin x = \frac{\pi}{2} \rightarrow y = \frac{\pi}{\lambda}$

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

ا) $y = \sin^2 x + \cos^2 x$

$\rightarrow \sin^2 x + \cos^2 x = 1$

$\sin^2 x + \cos^2 x = 1$

$\cos^2 x = 1 - \sin^2 x$

$0 \leq \sin^2 x \leq 1$

$R_f = [1, 1]$

ب) $y = \frac{\cos x}{1 + \cot^2 x}$

$\frac{\cos x}{\sin^2 x}$

$\cos x \sin x = \sin(2x)$

$R_f = [-1, 1]$

ا) $y = \sin^2 x + \cos^2 x$

$\frac{1}{2} \leq \sin^2 x + \cos^2 x \leq 1$

$\frac{1}{2} \leq \sin^2 x + \cos^2 x \leq 1$

$R_f = [\frac{1}{2}, 1]$

ب) $y = \sin^2 x + \cos^2 x$

$\frac{1}{\lambda} \leq \sin^2 x + \cos^2 x \leq 1$

$R_f = \{0, 1\}$

$$\text{a)} \quad y = \frac{x^2 + x - \varepsilon}{n + \varepsilon}$$

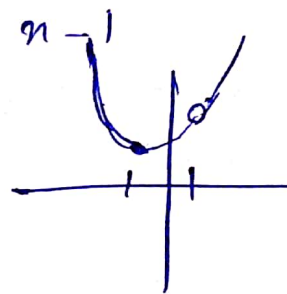
$$x^2 + x - \varepsilon \leq y \rightarrow x^2 + 1x - 1 \leq y$$

$$(x+1)(x-1) \leq y \rightarrow y \leq (x+1)(x-1)$$

$$\frac{(x+1)(x-1)}{x-1} \leq x-1 \rightarrow R \neq \mathbb{R} \rightarrow R \subseteq \mathbb{R} - \{1\}$$

$D_{x^2+1x-1} = \varepsilon$
 $R \subseteq \mathbb{R} - \{1\}$
 $y \leq \frac{x^2 - 1}{x - 1}$
 $D_f \subseteq \mathbb{R} - \{1\}$

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



$$y \leq x^2 + 1x - 1$$

$$\hookrightarrow \text{ext} \left| \frac{1}{x-1} \right|$$

$$R_f \subseteq \left[\frac{1}{\varepsilon}, +\infty \right)$$