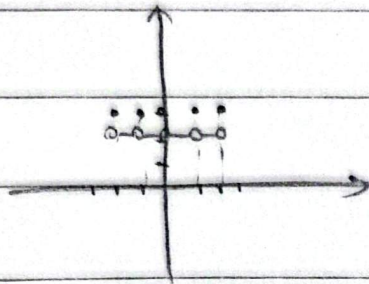


1)  $y = [n] \cdot e + [-n] \cdot (-1) = ([n] + [-n]) \cdot e$

9



$R_F \in \{1, \infty\}$

2)  $y = [n]$

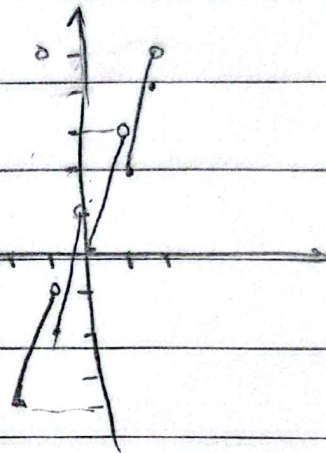
3)  $-1 \leq n < 0 \rightarrow y = n+1$

4)  $0 \leq n < 1 \rightarrow y = n$

5)  $1 \leq n < 2 \rightarrow y = n-1$

6)  $n \geq 2 \rightarrow y = n-2$

7)  $n \leq -1 \rightarrow y = n+1$



8)  $\sin^2 \sin^{n+1} \rightarrow 1 \rightarrow 1+1+1+1$

10

9)  $\sin^2 \sin^{n+1} \rightarrow 1 \rightarrow 1+1+1+1$   
 $\sin^2 \sin^{n+1} \rightarrow 1 \rightarrow 1+1+1+1$   
 $\sin^2 \sin^{n+1} \rightarrow 1 \rightarrow 1+1+1+1$

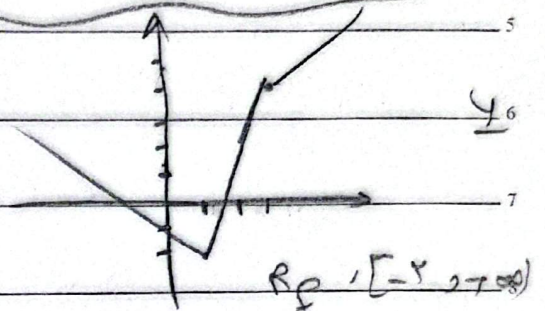
10)  $\sin^2 \sin^{n+1} \rightarrow 1 \rightarrow 1+1+1+1$

11)  $\sin^2 \sin^{n+1} \rightarrow 1 \rightarrow 1+1+1+1$   
 $\sin^2 \sin^{n+1} \rightarrow 1 \rightarrow 1+1+1+1$   
 $\sin^2 \sin^{n+1} \rightarrow 1 \rightarrow 1+1+1+1$

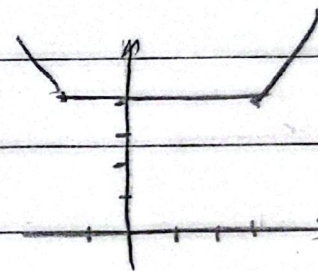
الف)  $\lim_{n \rightarrow \infty} (n - n + 1) \rightarrow \lim_{n \rightarrow \infty} (1) = 1$   $R_f \subset \mathbb{R}$

ب)  $\lim_{n \rightarrow \infty} \left( \frac{n^2 + 1}{n} \right) \rightarrow \frac{n^2 + 1}{n} \rightarrow n + \frac{1}{n} \rightarrow \lim_{n \rightarrow \infty} \left( n + \frac{1}{n} \right) = \infty$

ج)  $f(n) = \begin{cases} n+1 & n > 1 \\ 0 & n = 1 \\ -n-1 & n < 1 \end{cases}$

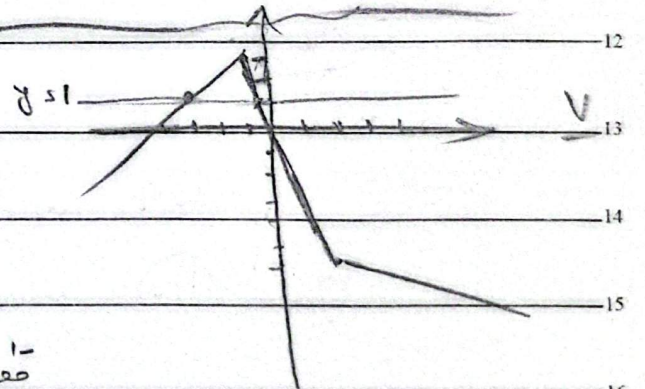


د)  $y = |n-1| + |n+1|$   $\lim_{n \rightarrow \infty} y = \infty$



$R_f \subset [1, \infty)$

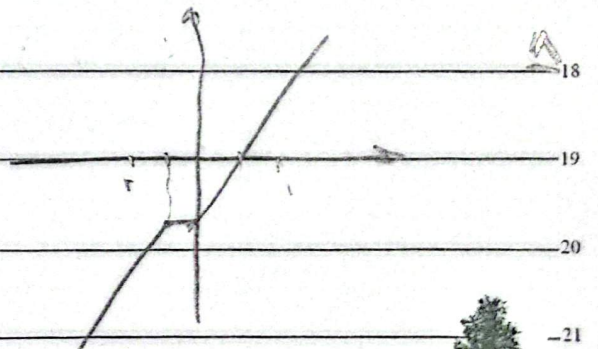
$f(n) = \begin{cases} -n-2 & n > 1 \\ -n & -1 \leq n \leq 1 \\ n+2 & n < -1 \end{cases}$



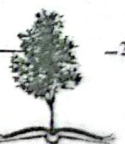
نقطة  $\rightarrow (-1, 1)$  و  $(-1/2, 1)$   $\lim_{n \rightarrow \infty} y = \infty$

$\Rightarrow R_f \subset \mathbb{R} - (-\infty, -1/2)$

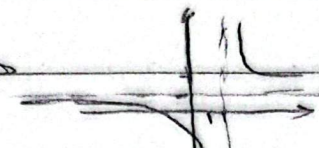
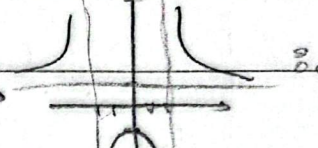
$f(n) = \begin{cases} 2n-1 & n \geq 0 \\ -1 & -1/2 \leq n < 0 \\ n+1 & n < -1/2 \end{cases}$



$R_f \subset \mathbb{R}$



صباح

1  $y = \frac{|x|+1}{|x|^2} \rightarrow$    $\frac{1}{|x|^2} + \frac{1}{|x|}$    $\frac{1}{|x|^2} + \frac{1}{|x|}$

2  $x \rightarrow y = -1/x \Rightarrow R_p, R_- (-1/x, 1)$

3  $y = \frac{x^2+1}{|x|} = |x| + \frac{1}{|x|} \rightarrow [1, +\infty) \cup R_p$

4  $y = \frac{x^2+2x-1}{x+1} \rightarrow x^2+2x-1 \leq y(x+1) \rightarrow x^2+(2-y)x-y-1 \rightarrow x^2+(2-y)x-y-1$

5  $\Delta \leq (2-y)^2 - 4(-y-1) \geq 0 \rightarrow y^2+4y+12 \geq 0$

6  $(y+2)(y+6) \geq 0$

7  $R_p \in (-\infty, -6] \cup [2, +\infty)$

8  $y = \frac{x^2-x+1/2}{x^2-x+1} \rightarrow D_f \rightarrow x^2-x+1 \neq 0 \rightarrow$

9  $(y-1)x^2 + (1-y)x + y-1/2 \leq 0$

10  $(y-1)^2 - 4(y-1)(y-1/2) \geq 0 \rightarrow -y^2+y \geq 0 \rightarrow y(1-y) \geq 0$

11  $R_p \in [0, 1)$

12  $\Delta = \frac{b^2-4ac}{4a^2} = \frac{(-1)^2-4(1)(-1/2)}{4(1)^2} = \frac{1+2}{4} = \frac{3}{4}$

13  $\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{1 \pm \sqrt{3}}{2}$

14  $\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{1 \pm \sqrt{3}}{2}$

