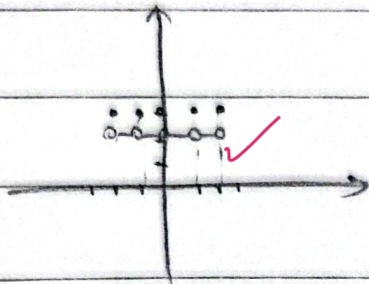


1) $y = [n] \cdot e \rightarrow [-n] \cdot e \quad ([n] + [-n]) \cdot e$

(1,5)



$R_F \cdot \{ \checkmark \}$

2) $y = [n]$

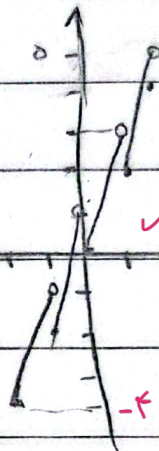
3) $-1 \leq n < 1 \rightarrow n_{n+1}$

4) $1 \leq n < 0 \rightarrow n_{n+1}$

5) $0 \leq n < 1 \rightarrow n_n$

6) $1 \leq n < 2 \rightarrow n_{n-1}$

7) $n \leq 2 \rightarrow y = z$



$R_y = [-1, 0)$

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

(1) 1

9) $\sin^2 \sin_{n+1} \rightarrow 1 \rightarrow 1+1+1+1 \rightarrow R_F \cdot [1, 2] \quad [\frac{1}{2}, 1] \rightarrow$
 $-\frac{b}{ra} \rightarrow \frac{1}{2} \rightarrow \frac{1}{2} + 1 + 1 \rightarrow \frac{5}{2}$

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

$\rightarrow [1, 2] \cdot R_F$

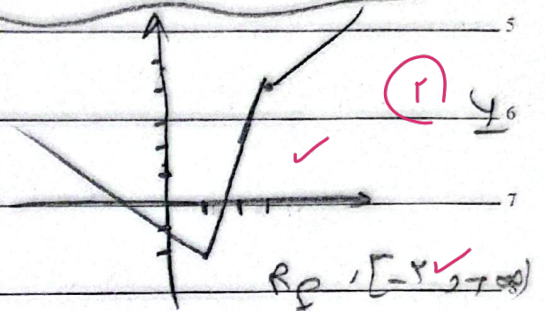
11) $\sin^2 \sin_{n+1} \rightarrow 1 \rightarrow 1+1+1+1$
 $-\frac{b}{ra} \rightarrow -1/4 \rightarrow 0 \rightarrow 0 \rightarrow 0$



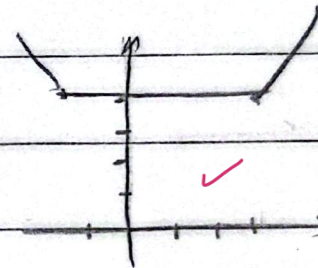
الف) $\lim_{x \rightarrow \infty} \ln(x - a) = \ln(\infty) = \infty$

$\lim_{x \rightarrow 0} \frac{x^2 + 1}{x^2} \rightarrow \frac{1}{0} \rightarrow \infty \rightarrow \text{diverges}$

$$(ii) f(x) = \begin{cases} x+1 & x \geq 1 \\ x-1 & x > 1 \\ -x-1 & x < 1 \end{cases}$$

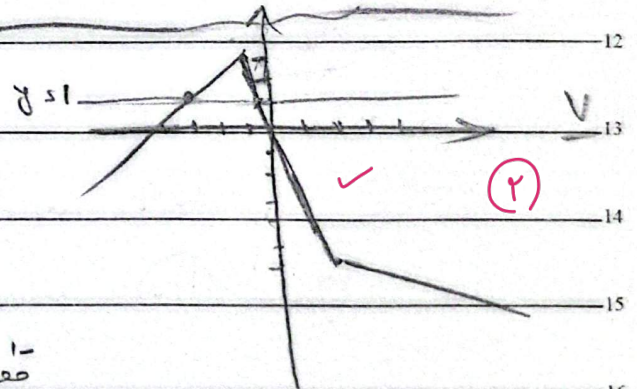


$$-1) y = \frac{(n-1)}{n} \cdot \frac{(n-1)}{-1} \rightarrow 320$$



$$R_f \subset [c, \infty)$$

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



نقطه $\rightarrow (-3, 1)$ و $(-1, 1)$ نقطه

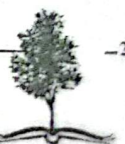
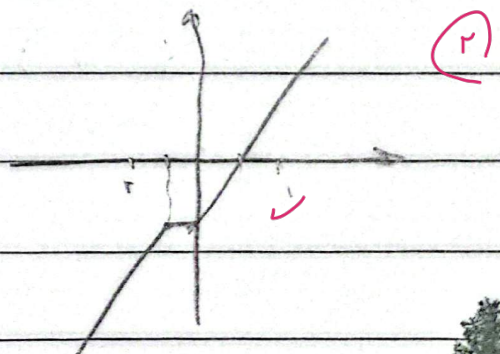
$$\Rightarrow R_f \leq R - (-\infty - \sqrt{1})$$

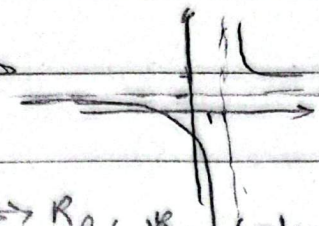
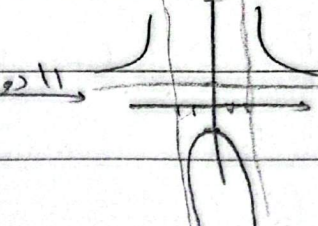
$$P(n) \text{ s } \gamma_{n-1} \quad n \geq 0$$

-1 -1 KONCO

$$m+1 \quad n-1$$

R f SIR ✓



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

2 $x \rightarrow y = -1/x \Rightarrow R_f: R - \{(-1, 0)\}$

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

4

5 $y = \frac{x^2+2x-1}{x+1} \rightarrow x^2+2x-1 \leq y(x+1) \rightarrow x^2+(2-y)x-y-1 \geq 0$

6 $\Delta \leq (2-y)^2 - 4(-y-1) \geq 0 \rightarrow y^2+4y+8 \geq 0$ (2)

7 $(y+2)(y+4) \geq 0$

8 $R_f: (-\infty, -4] \cup [2, +\infty)$

9 $D_f = R$ (1/2)

10 $R_f \rightarrow yx^2 - yx + yx^2 - x + 1/2 \rightarrow (y-1)x^2 + (1-y)x + 1/2 \geq 0$

11 $(y-1)^2 - 4(y-1)(1/2) \geq 0 \rightarrow y^2 - 2y \geq 0 \rightarrow y(y-2) \geq 0$

12 $R_f: [0, 1) \cup [2, +\infty)$

13 $y = \sqrt{x^2+2x-1}$ $\frac{-b}{2a} = \frac{-1}{1} = -1$ $\Delta = 1 - 4(-1) = 5$ $\sqrt{-1 \pm \sqrt{5}}$ $[-1-\sqrt{5}, -1+\sqrt{5}] \cup R_f$ (2)

14 $\sqrt{x^2+2x-1}$ $\frac{-b}{2a} = \frac{-1}{1} = -1$ $\Delta = 1 - 4(-1) = 5$ $\sqrt{-1 \pm \sqrt{5}}$ $[-1-\sqrt{5}, -1+\sqrt{5}] \cup R_f$