

$$f(n+1) + f(n+5) = 2n + f(n) \quad R \text{ e } b \rightarrow y = \sqrt{f(n) - n^2}$$

$$f(n) = an + b \rightarrow f(n+1) + f(n+5) = 2n + f(n)$$

$$2an + a + b + an + 5a + b = 2n + 2a + b \rightarrow 3an + 6a + 2b = 2n + 2a + b \rightarrow b = 0$$

$$2an = 2n \rightarrow a = 1 \rightarrow f(n) = n \quad y = \sqrt{n - n^2} \quad R = (-\infty, \frac{1}{2}]$$

$$f(n) = \frac{n^2 - 5n}{n+5} \quad D_f = R - \{a, b\} \quad R_f = [c, +\infty) - \{1\}$$

$$\frac{n(n^2 - 5)}{n+5} = \frac{n(n-5)(n+5)}{n+5} \quad n \neq -5 \quad R = [-\frac{1}{5}, +\infty)$$

$$R = \Lambda \rightarrow D = \{5, -5\} \quad D_f = R - \{5, -5\} \quad f(\frac{5}{-1}) = f(-5) \quad f(\frac{a+b}{2}) = f(\frac{5-5}{2}) = f(0) = 0$$

$$n^2 - 5n = \Lambda \rightarrow n^2 - 5n - \Lambda = 0 \rightarrow (n-5)(n+5) = 0 \rightarrow 5, -5$$

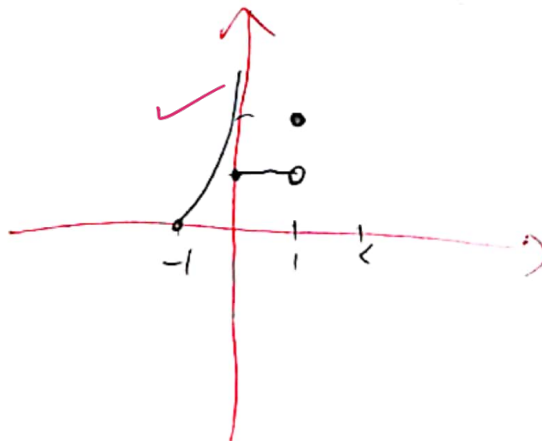
$$y = \sqrt{n^2 + an^2 + bn + \Lambda} \quad [a, b]$$

$$y = \sqrt{f(n)} \rightarrow \sqrt{(n-5)^2} = \sqrt{n^2 - 10n + 25} \quad [-1, 1] \quad D_f = [-5, 1] \rightarrow R_f = [-1, 1]$$

$$y_1 = (\frac{n+1}{1-n})^{\frac{1}{5}} \rightarrow a+b=? \quad \frac{1}{1-n} \rightarrow -1 \leq n < 1$$

$$y_2 = \frac{a^{\frac{1}{5}} - 1}{n+b} \quad R_{y_2} \rightarrow [-\frac{1}{b}, a^{\frac{1}{5}}) \rightarrow b=1, a=1 \quad a+b=5 \quad a+b=5$$

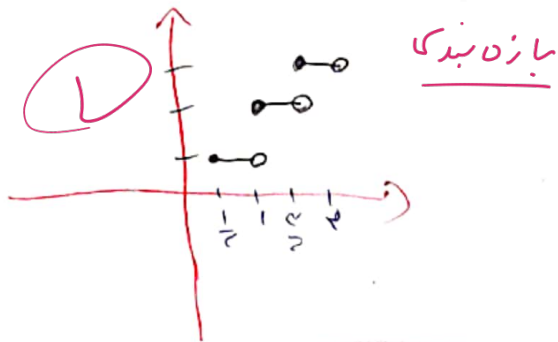
$$\frac{[n]}{n} + \frac{[n]}{n} \quad [-1, 1]$$



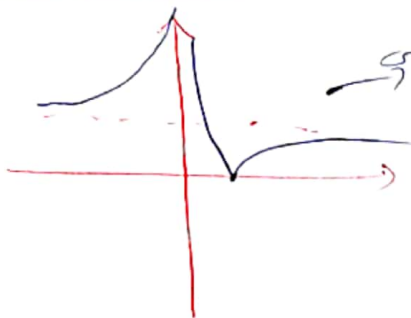
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$$\begin{cases} -1 \leq x < 0 & -\frac{1}{x} - 1 \\ 0 \leq x < 1 & 1 \\ x \geq 1 & \frac{1}{x} + 1 \end{cases}$$

$$y = [x] + \left[x + \frac{1}{2}\right] \quad \text{در } \left[-\frac{1}{2}, 2\right)$$



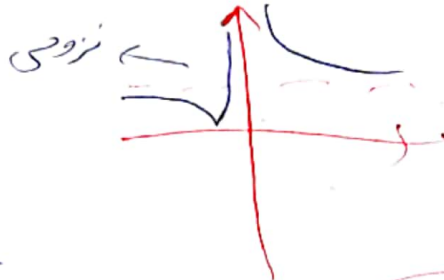
$$\begin{cases} -\frac{1}{2} \leq x < 0 & y = 0 \\ 0 \leq x < 1 & y = 1 \\ 1 \leq x < 2 & y = 2 \end{cases}$$



$$a = 1$$

$$b = -2$$

$$a - b = 3$$



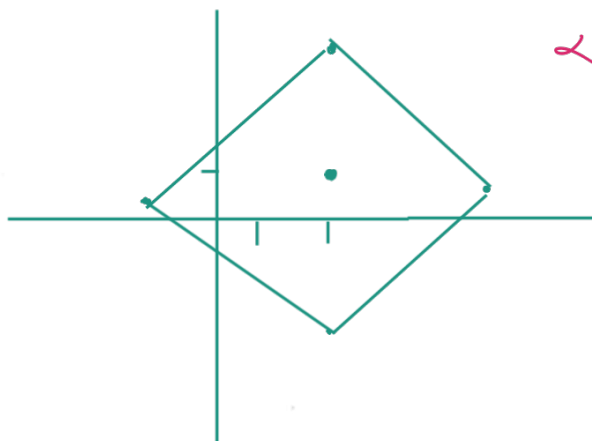
$$\left| \frac{n-1}{a_n+b} \right|$$

$$y = 1$$

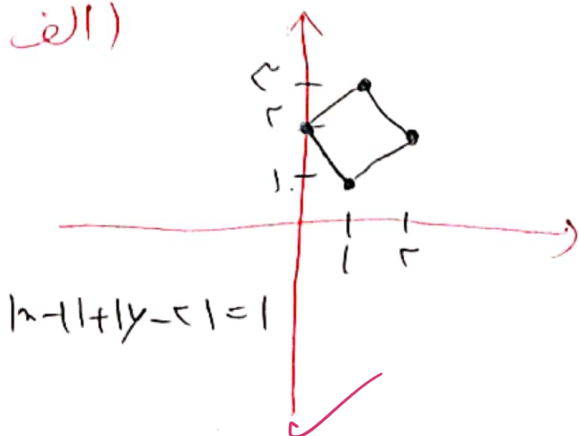
$$(b, +\infty)$$

$$a - b = 3$$

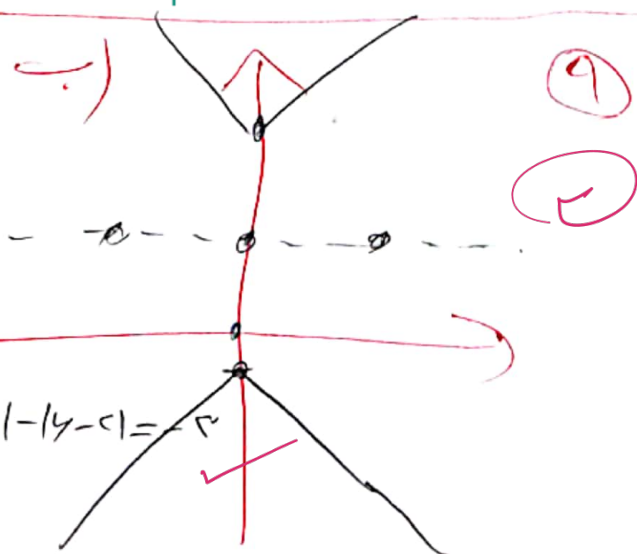
$$\begin{cases} x \geq 2 & y \geq 1 & y = 4 - x \\ x \geq 2 & y \leq 1 & y = x - 2 \\ x \leq 2 & y \geq 1 & y = x + 2 \\ x \leq 2 & y \leq 1 & y = -x \end{cases}$$



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$$|x-1| + |y-2| = 1$$



$$|x-1| - |y-2| = -2$$

$$y = cn + |an + b| \quad R_f = \mathbb{R}$$

$$-c \leq a \leq c$$

$$b$$

$$\begin{aligned} an + b > 0 &\rightarrow cn + an + b = y \rightarrow y = (c+a)n + b \\ an + b < 0 &\rightarrow cn - an - b = y \rightarrow y = (c-a)n - b \end{aligned} \left. \vphantom{\begin{aligned} an + b > 0 \\ an + b < 0 \end{aligned}} \right\} \rightarrow f\left(-\frac{b}{a}\right) = f\left(-\frac{b}{a}\right)$$

$$(c+a)(c-a) > 0 \quad -c \leq a \leq c \quad (c+a)\left(-\frac{b}{a}\right) + b = (c-a)\left(-\frac{b}{a}\right) - b$$