

درس صارت زاده - یازدهم رشت A

$$\frac{1}{n-1} = |n-1| \xrightarrow{n>1} \frac{1}{n-1} = n-1 \Rightarrow (n-1)^2 \geq 1 \Rightarrow n^2 - 2n + 1 = 1 \quad \text{سوال (1)}$$

$$\Rightarrow n(n-2) \geq 0 \Rightarrow n \geq 0 \cup n \leq -2$$

$$\hookrightarrow n = 2$$

$$\xrightarrow{n < 1} \frac{1}{n-1} = -n+1 \Rightarrow -n^2 + 2n - 1 = 1 \Rightarrow n^2 - 2n + 2 = 0$$

$$\hookrightarrow \Delta = b^2 - 4ac = 4 - 8 < 0$$

$$\Rightarrow n = 2 \Rightarrow \text{نقطه}$$

$$\text{الف) } \left| \frac{2n-1}{n} \right| < 2 \rightarrow -2 < \frac{2n-1}{n} < 2 \quad \text{سوال (2)}$$

$$\rightarrow \text{D) } \frac{2n-1}{n} + 2 > 0 \quad \frac{4n-1}{n} > 0 \quad \frac{1}{x} \text{ chart} \rightarrow (-\infty, 0) \cup (\frac{1}{4}, +\infty)^*$$

$$\rightarrow \text{P) } \frac{2n-1}{n} - 2 < 0 \quad -\frac{1}{n} < 0 \rightarrow \frac{1}{n} > 0 \quad \frac{1}{x} \text{ chart} \rightarrow n > 0^{**}$$

$$** \cap ** = \text{مجموعه جواب} = (\frac{1}{4}, +\infty)$$

$$\text{ب) } \left| \frac{n-2}{2n+1} \right| > 1 \rightarrow \frac{n-2}{2n+1} > 1 \rightarrow \frac{-n-3}{2n+1} > 0 \quad \frac{1}{x} \text{ chart} \rightarrow (-3, -\frac{1}{2})^*$$

$$\rightarrow (-3, -\frac{1}{2})^*$$

$$\frac{n-2}{2n+1} < -1 \quad \frac{n-2}{2n+1} + 1 < 0 \quad \frac{3n-1}{2n+1} < 0 \quad \frac{1}{x} \text{ chart} \rightarrow (-\frac{1}{3}, \frac{1}{2})^*$$

$$** \cap ** = \emptyset$$

سوال (3) مجموعه جواب ناسازگار: $|n-4| < \beta$ و $|n+4| < \alpha$ ؟

$$n^2 - n - 4 < 0 \quad (n-4)(n+2) < 0 \quad \frac{1}{x} \text{ chart} \rightarrow (2, 4)^* \quad \text{سوال (3)}$$

$$n+4 < -n^2 \rightarrow n^2 + n + 4 < 0$$

$$\hookrightarrow \Delta = 1 - 16 < 0$$

$$|n - \alpha| < \beta \rightarrow -\beta < n - \alpha < \beta \rightarrow \alpha - \beta < n < \alpha + \beta$$

$$\begin{cases} \alpha - \beta = -2 \\ \alpha + \beta = 4 \end{cases}$$

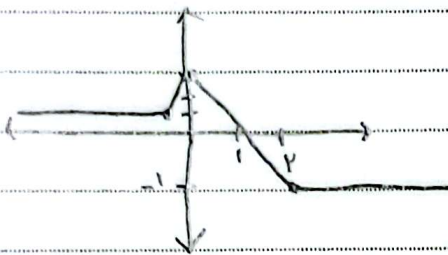
$$2\alpha = 1 \Rightarrow \alpha = \frac{1}{2}$$

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

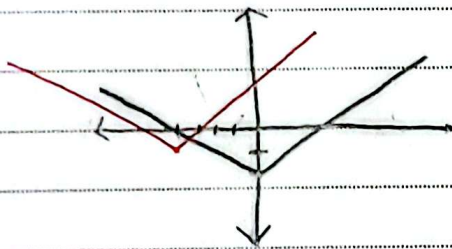
-1 0 2

-1	0	2	
$-x-1+2x$	$x+1+2x$	$x+1-2x$	$x+1-2x+x-2$
$-x+2$	$-x+2$	$-x+2$	$-x+2$
$= 1$	$= -2x+3$	$= -x+3$	$= -1$

(303)



$$\text{مستقيمات} + \text{مستقيمات} = 3 - 1 = 2$$



$$y = \left| \frac{1}{p} x \right| - 2 \quad \text{سوال (5)}$$

$$\left| \frac{x}{p} \right| - 2 = \left| \frac{x}{p} + 2 \right| - 1$$

$$|t| - |t+2| = 1$$

$$|t| = 1 + |t+2| \quad \text{موجب}$$

$$t = 1 + t + 2 + 2t + 2 + 2 + 2$$

$$4t = -9 \rightarrow t = -\frac{9}{4}$$

$$\frac{1}{p} x = -\frac{9}{4} \Rightarrow x = -\frac{9p}{4}$$

$$\text{الف) } f(x) = [|1-x| - |x+2|]$$

-2	-1	1	
$1-x+2+x$	$1-x-x-2$	$x-1-x-2$	$x-1-x-2$
$= 3$	$= -2x-1$	$= -3$	$= -3$

سطح (40)

$$-3 < |1-x| - |x+2| < 3 \Rightarrow \{ |1-x| - |x+2| \} = \{-3, -2, -1, 0, 1, 2, 3\}$$

$$b) f(n) = \frac{1}{n} - \left\lfloor \frac{n+1}{n} \right\rfloor = \frac{1}{n} - \left[\frac{1}{n} \right] + 1$$

$$\hookrightarrow 1 + \frac{1}{n} \quad t$$

$$0 < t < 1 \xrightarrow{+1} 1 < t+1 < 2 \xrightarrow{t} R_f = [1, 2)$$

(ص د)

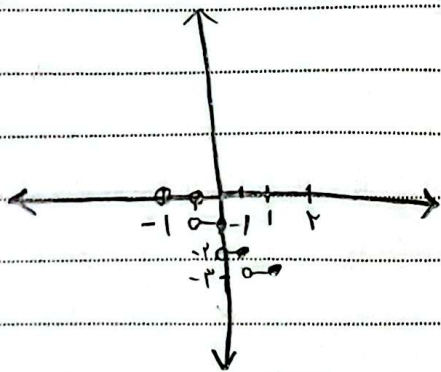
$$الف) y = [-2n] - 1 \quad n \in (-1, 1) \Rightarrow 2n \in (-2, 2)$$

$$-2 < 2n < -1 \rightarrow 1 < -2n < 2 \rightarrow [-2n] = 1 \rightarrow y = 0, -1 < n < -\frac{1}{2}$$

$$-1 < 2n < 0 \rightarrow 0 < -2n < 1 \rightarrow [-2n] = 0 \rightarrow y = -1, -\frac{1}{2} < n < 0$$

$$0 < 2n < 1 \rightarrow -1 < -2n < 0 \rightarrow [-2n] = -1 \rightarrow y = -2, 0 < n < \frac{1}{2}$$

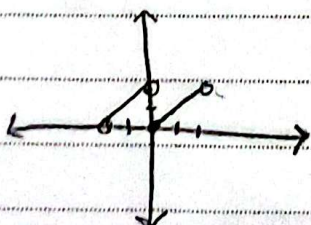
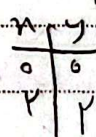
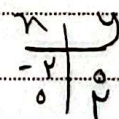
$$1 < 2n < 2 \rightarrow -2 < -2n < -1 \rightarrow [-2n] = -2 \rightarrow y = -4, \frac{1}{2} < n < 1$$



$$ب) y = n - 2\left[\frac{n}{2}\right] \quad -2 < n < 2 \rightarrow -1 < \frac{n}{2} < 1$$

$$-1 < \frac{n}{2} < 0 \rightarrow \left[\frac{n}{2}\right] = -1 \rightarrow y = n + 2, -2 < n < 0$$

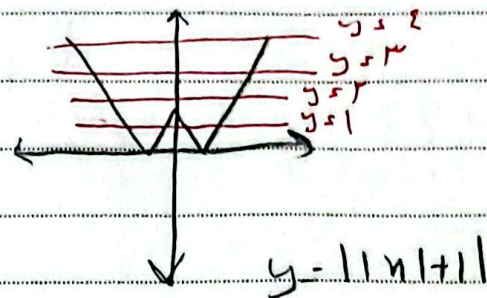
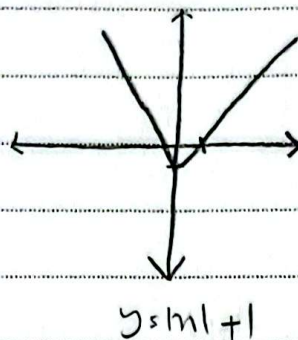
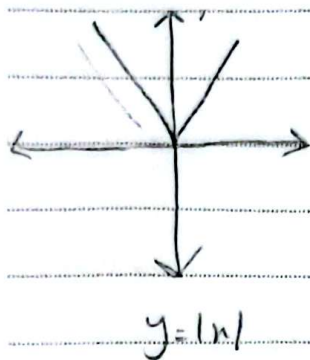
$$0 < \frac{n}{2} < 1 \rightarrow \left[\frac{n}{2}\right] = 0 \rightarrow y = n, 0 < n < 2$$



الف $y = [|n| - 1]$

$-2 < n < 2$

سوال ٦



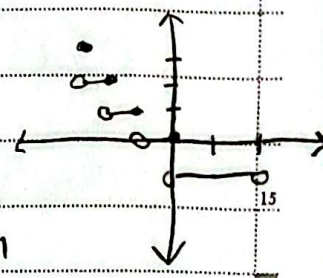
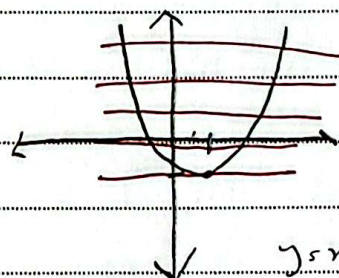
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ب) $[n^2 - 2n]$

$\left| \begin{matrix} -\frac{b}{2a} & 1 \\ & -1 \end{matrix} \right|$



$a + [b] = 1, 2$

$b - [a] = 2, 3$

سوال ٩

$a + [b] = 1, 2$

$[a] = n$

$a = n + 0, 1$

$b - [a] = 2, 3$

$[b] = y$

$b = y + 0, 1$

$n + 0, 1 + y = 1, 2$

$\rightarrow \begin{cases} n + y = 1 \\ y - n = 2 \end{cases}$

$y + 0, 1 - n = 2, 3$

$2y = 4 \rightarrow y = 2, n = 1$

$\Rightarrow a + b = 1, 4$

$\hookrightarrow b = 3, 4 \hookrightarrow a = 1, 2$

$(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 191 \rightarrow (1 + \sqrt{2})^4 = 191 - (1 - \sqrt{2})^4$

سوال ١٠

$[(1 + \sqrt{2})^4] = [191 - \underbrace{(1 - \sqrt{2})^4}_{\approx 1}] \rightarrow [(1 + \sqrt{2})^4] = 190$

که بتوانیم در هر دو طرف را یکسان کنیم

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