

سارا سامانی یازدهم دختر A - تکلیف شماره ۲۰:

$$\frac{1}{n-1} = |n-1| \rightarrow \frac{1}{n-1} = n-1 \Rightarrow (n-1)^r = 1 \Rightarrow n^r - r n = 0 \Rightarrow \underbrace{n=0, n=r}_{\text{GÜZ}}$$

$$\rightarrow \frac{1}{n-1} = 1-n \rightarrow -(n-1)^r = 1 \Rightarrow -n^r + r n - 1 = 1 \Rightarrow n^r - r n + 2 = 0$$

$$\Delta = K - K(1)(-1) = -K \longleftrightarrow$$

$$\left\{ \frac{r_{n-1}}{n} \right\}_{n \neq 0} \begin{cases} \angle r \rightarrow \frac{r_{n-1}}{n} \angle r \Rightarrow r_{n-1} \angle r_n \Rightarrow -1 \angle 0 \checkmark \\ \searrow \frac{r_{n-1}}{n} \angle -r \Rightarrow r_{n-1} \angle -r_n \Rightarrow r_n \angle 1 \Rightarrow n \angle \frac{1}{r} \checkmark \end{cases}$$

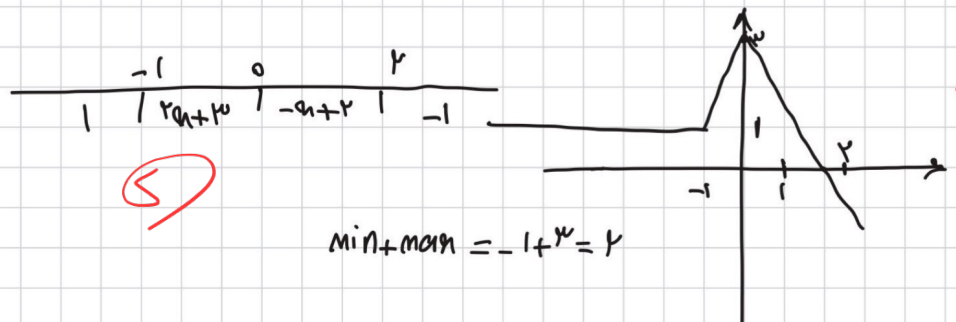
[illegible]

$$a^r \langle m+y | \rightarrow a^r \langle n+y | \Rightarrow a^r - a_n - y = 0 \rightarrow a_n = r \quad \text{if } a = r$$

$$\searrow a^r \langle -n-y | \rightarrow a^r + a_n + y = 0 \rightarrow \Delta \langle .$$

$$|a - \alpha| < \beta \Rightarrow -\beta < a - \alpha < \beta \xrightarrow{+\alpha} \alpha - \beta < a < \alpha + \beta \Rightarrow \begin{cases} \alpha - \beta = -r \\ \alpha + \beta = r \end{cases} \Rightarrow r_\alpha = 1 \Rightarrow \alpha = \frac{1}{r}$$

$$y = \underset{-1 \leftarrow}{|n+1|} - \underset{0 \leftarrow}{|rn|} + \underset{r \leftarrow}{|n-r|}$$



$$y = \frac{1}{r} a(1-r)$$



$$\frac{1}{p}n + 1 = -\frac{1}{p}n - q$$

$$n = -\mu$$

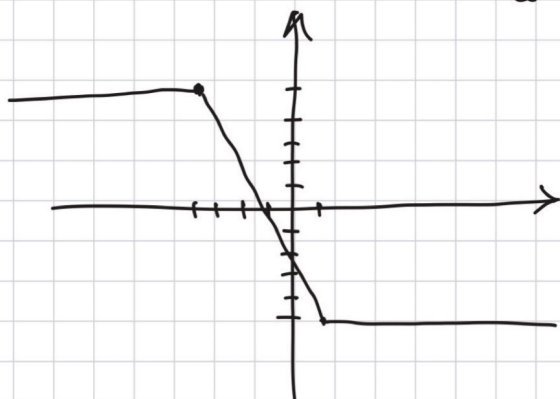
$$f(n) = [|r \cdot n| - |n + r|]$$

$$\frac{-r}{\Delta} \quad | \quad -\Delta$$

$$-\Delta \leq |r \cdot n| - |n + r| \leq \Delta$$

$$[|r \cdot n| - |n + r|] = \{ -\Delta, -r, \dots, r, \Delta \}$$

$$R_f = \{ \pm \Delta, \pm r, \dots, \pm 1, 0 \}$$



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$$b) f(n) = \frac{1}{n} - \left[\frac{n+1}{n} \right] = \frac{1}{n} - \left[\frac{1}{n} \right] \Rightarrow 0 < t < 1 \Rightarrow 1 < t+1 < 2 \Rightarrow R_f = (1, 2)$$

$$R_f = [-1, 0]$$

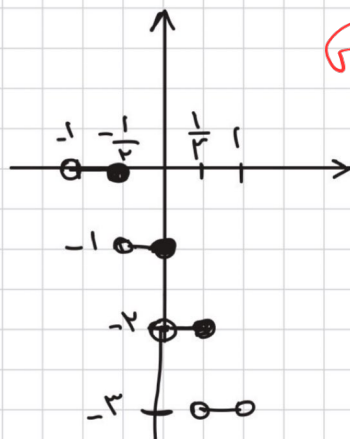
$$الف) y = [-r_n] - 1$$

$$-1 < n \leq -\frac{1}{r} \Rightarrow 1 \leq -r_n < r \Rightarrow [-r_n] = 1 \Rightarrow y = 0$$

$$-\frac{1}{r} < n \leq 0 \Rightarrow 0 \leq -r_n < 1 \Rightarrow [-r_n] = 0 \Rightarrow y = -1$$

$$0 < n < \frac{1}{r} \Rightarrow -1 \leq -r_n < 0 \Rightarrow [-r_n] = -1 \Rightarrow y = -r$$

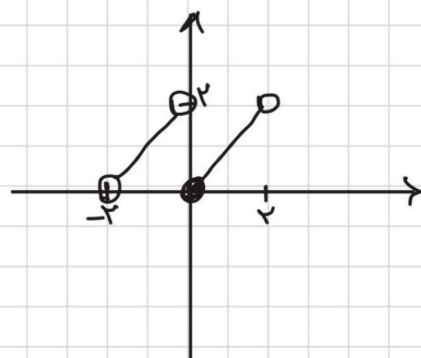
$$\frac{1}{r} < n < 1 \Rightarrow -r < -r_n < -1 \Rightarrow [-r_n] = -r \Rightarrow y = -r^2$$



$$b) y = n - r \left[\frac{n}{r} \right]$$

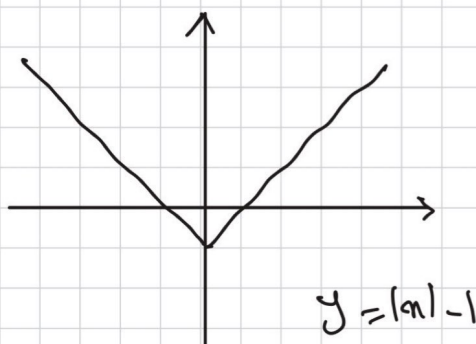
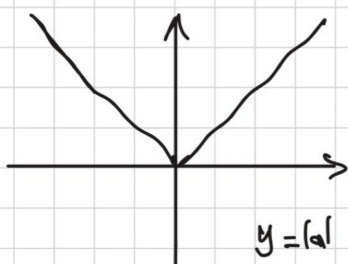
$$-r < n < 0 \Rightarrow -1 < \frac{n}{r} < 0 \Rightarrow \left[\frac{n}{r} \right] = -1 \Rightarrow y = n + r$$

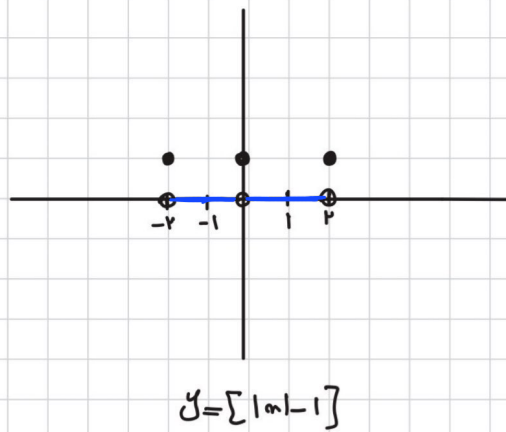
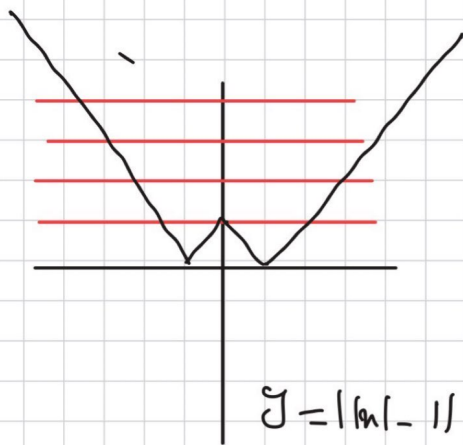
$$0 \leq n < r \Rightarrow 0 \leq \frac{n}{r} < 1 \Rightarrow \left[\frac{n}{r} \right] = 0 \Rightarrow y = n$$



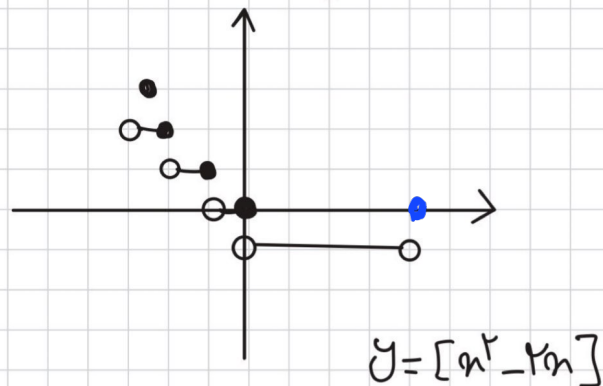
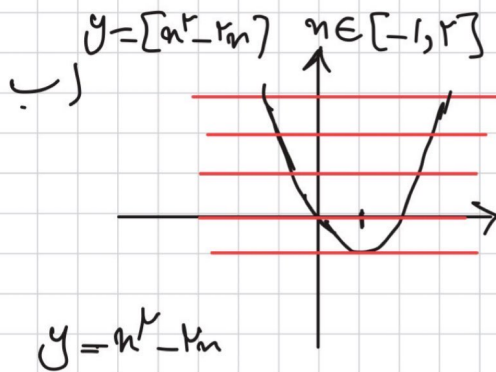
الف)

$$y = [|n| - 1] \quad n \in [-r, r]$$





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$$a + [b] = 4, 4 \quad [a] = t \Rightarrow a = t + 0, 4$$

$$b - [a] = 4, 4 \quad [b] = s \Rightarrow b = s + 0, 4$$

$$t + 0, 4 + s = 4, 4 \Rightarrow s + t = 4$$

$$s + 0, 4 - t = 4, 4 \Rightarrow s - t = 4$$

$$\frac{2s = 8}{s = 4} \Rightarrow s = 4, t = 0$$

$$b = 4, 4, a = 0, 4 \Rightarrow a + b = 4, 4$$

$$a = (1 + \sqrt{2})^4 \quad b = (1 - \sqrt{2})^4 \quad \text{نشان ده } 1 - \sqrt{2} = -(\sqrt{2} - 1) \Rightarrow$$

$$a + b = 191$$

$$b = (1 - \sqrt{2})^4 = (\sqrt{2} - 1)^4 \rightarrow 0 < \sqrt{2} - 1 < 1 \Rightarrow 0 < b < 1$$

$$a = 191 - b \quad 191 - 1 < a < 191 \Rightarrow 190 < a < 191 \Rightarrow [a] = [(1 + \sqrt{2})^4] =$$

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