

19, 20

هست میت است

①

$$x \geq 1$$

درآمد نیست

$$n_1 = 0 \quad n \geq 1 \quad X$$



①

① $n \neq -\frac{1}{r}$

[illegible]

$$\cancel{K_{n+1}} - K_{n+1} \leq \cancel{K_{n+1}}$$

$$-K_{n+1} < 0 < K_n$$

$$\Rightarrow n > \frac{1}{\kappa} \quad \checkmark$$

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Subject.

$$x^2 < |x+4| \rightarrow \begin{cases} x^2 < x+4 & x > -4 \\ x^2 < -x-4 & x \leq -4 \end{cases} \quad (13) \quad (2)$$

$$\textcircled{I} \quad x^2 - x - 4 < 0 \quad \Rightarrow \quad -2 < x < 3$$

$$\downarrow$$

~~(x^2 - x - 4) = 0~~ $(x^2 - x - 4) = 0 \rightarrow \begin{cases} x = 3 \\ x = -2 \end{cases}$

$$\begin{array}{c} -2 \quad 3 \\ + \quad | \quad - \quad | \quad + \end{array}$$

$$\textcircled{II} \quad x^2 + x + 4 < 0 \rightarrow \Delta < 0 \rightarrow \text{تلاقی ندارند}$$

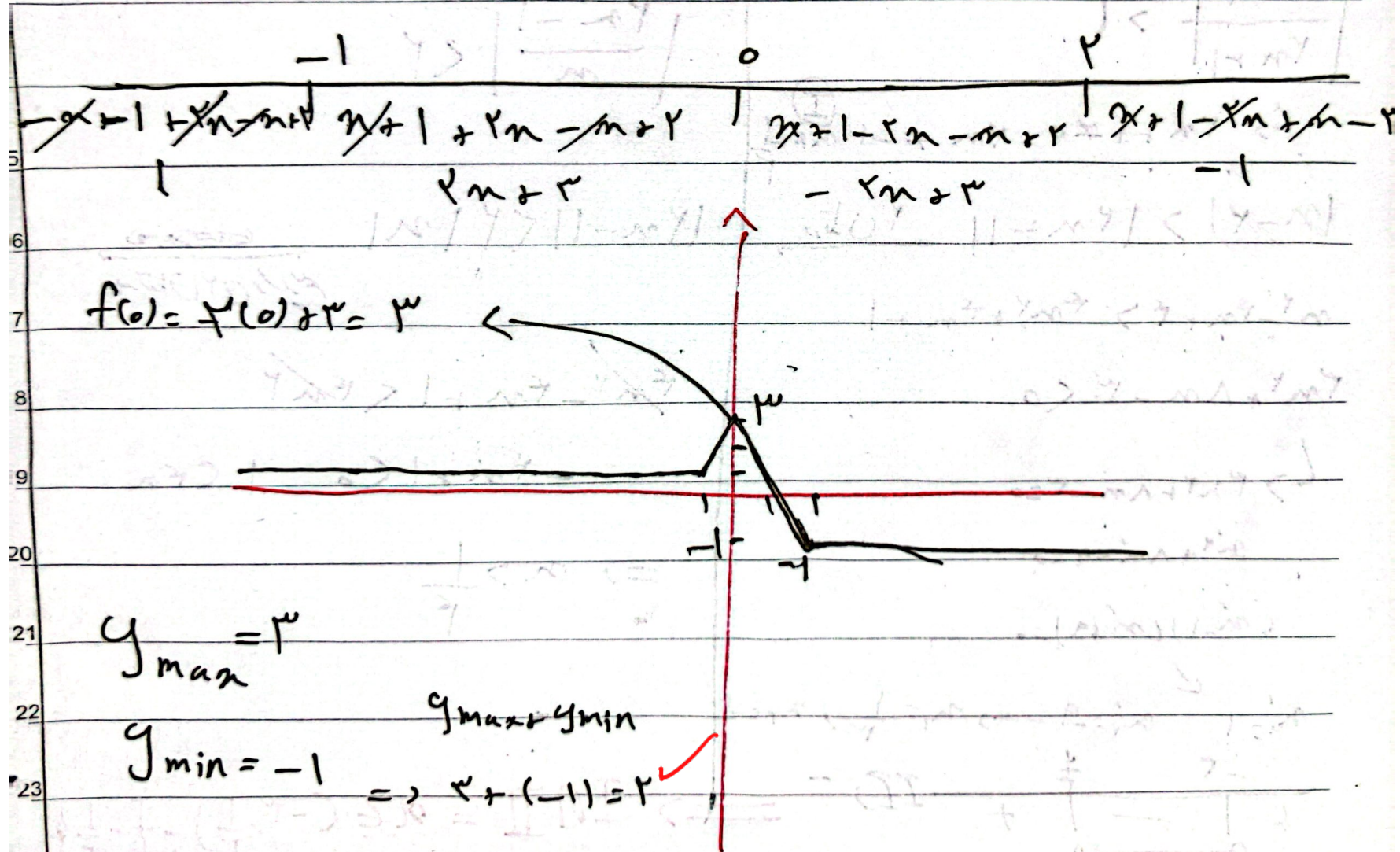
$$|x - \alpha| < \beta \rightarrow -\beta < x - \alpha < \beta$$

$$\left. \begin{aligned} \beta + \alpha < x < \beta + \alpha \\ -2 < x < 3 \end{aligned} \right\} \Rightarrow$$

$$\begin{cases} \beta + \alpha = 3 \\ -\beta + \alpha = -2 \end{cases} \Rightarrow \beta = \frac{5}{2}, \quad \boxed{\alpha = \frac{1}{2}} \quad \checkmark$$

$$g = |n+1-1x| + |n-x| \quad \text{for } n = -1, 0, 1$$

(2) (15)



ESPADANA

$$y = \left| \frac{1}{r} n \right| - r \xrightarrow[\text{منفی } n]{\text{کدام طرف}}, y = \left| \frac{1}{r} (n+r) \right| - r \quad (c) \quad (2)$$

$$\frac{\text{اواخر طرف}}{\text{مست}}, y = \left| \frac{1}{r} (n+r) \right| + 1$$

$$\left| \frac{1}{r} n + r \right| - r = \left| \frac{1}{r} n \right| - r \Rightarrow \left| \frac{1}{r} n + r \right| - \left| \frac{1}{r} n \right| = 0$$

$$- \frac{r}{r} \quad n = a$$

$$\left| \frac{1}{r} n \right| - \left| \frac{1}{r} n + r \right| = 1$$

$$n = -r$$

$$n = -3$$

$$-\frac{1}{r} n + \frac{1}{r} n + r = 1 \quad -\frac{1}{r} n - \frac{1}{r} n - r = 1 \quad \frac{1}{r} n - \frac{1}{r} n - r = 1$$

$$r = 1 \quad -n - r = 1 \quad -r = 1$$

$$n = -3 \quad \checkmark \quad -n = 3 \quad \checkmark$$

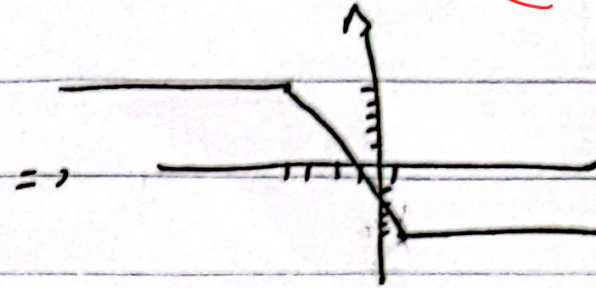
$$\text{الف) } f(n) = [|1-n| - |n+\epsilon|]$$

(9)

(2)

$$\Rightarrow |1-n| - |n+\epsilon|$$

$$\begin{array}{c|c|c} -\epsilon & 1 & \\ \hline 1-n+\epsilon & 1-n-n-\epsilon & -1+n-n-\epsilon \\ \hline \omega & -2n-\epsilon & -\omega \end{array}$$



$$-\omega \leq |1-n| - |n+\epsilon| \leq \omega \Rightarrow [|1-n| - |n+\epsilon|] = f(n)$$

$$R_f = \{-\omega, -\epsilon, -\epsilon, -\epsilon, -1, 0, 1, \epsilon, \epsilon, \epsilon, \omega\}$$

$$\text{ب) } \frac{1}{n} - \left[\frac{n}{n} \right] \Rightarrow \frac{1}{n} - \left[\frac{1}{n} + 1 \right]$$

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

$$-1 \leq \frac{1}{n} - \left[\frac{1}{n} \right] - 1 < 0 \Rightarrow R_y = [-1, 0)$$

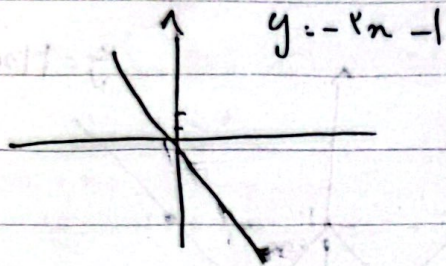
Subject.

$$y = [-2n] - 1$$

$$-1 < n < 1$$

(1,5) (✓)

$$-2 < -2n < 2$$

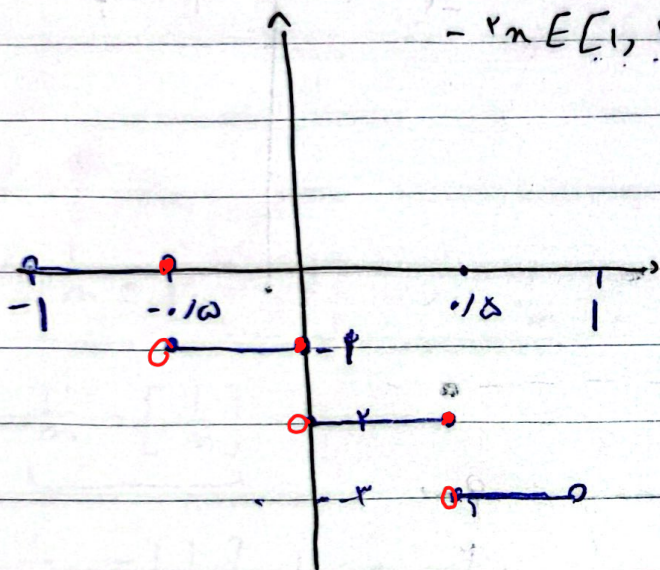


$$-2n \in (-2, -1) \rightarrow [-2n] = -2 \rightarrow y = -3$$

$$-2n \in [-1, 0) \rightarrow [-2n] = -1 \rightarrow y = -2$$

$$-2n \in [0, 1) \rightarrow [-2n] = 0 \rightarrow y = -1$$

$$-2n \in [1, 2) \rightarrow [-2n] = 1 \rightarrow y = 0$$

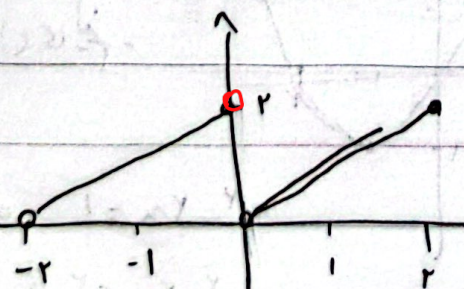
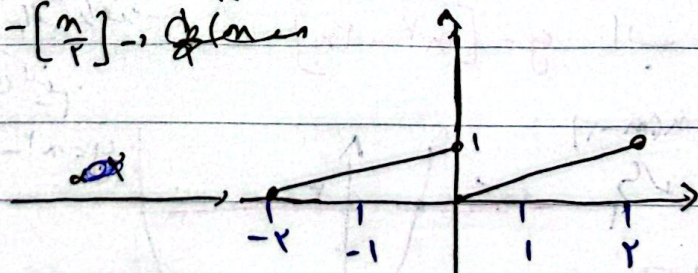
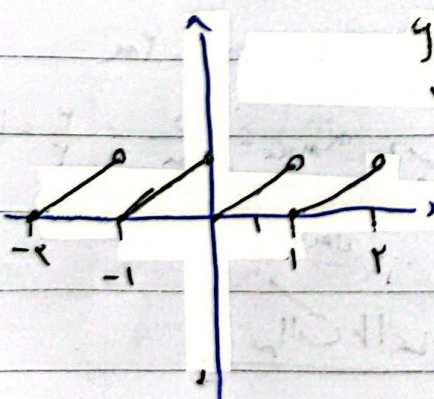


دقت!

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

طول باقی‌مانده آن بر 2 است یا 1 یعنی $\frac{1}{2}$ یا $\frac{1}{2}k$

$$y = \frac{n}{2} - \left[\frac{n}{2} \right] \rightarrow \text{frac}(n/2)$$



ESPADANA

Subject.

الف) $y = [|x| - 1]$

(2) ✓

$y = |x| - 1$

$y = |x| - 1$

$y = [|x| - 1]$

ب) $y = [x^2 - 2x]$

۱- حالت افقی
می کنیم

$y = x^2 - 2x$

$y = x(x - 2)$

$y = x^2 - 2x$

$x_{max} = -\frac{b}{2a} = \frac{2}{2} = 1$

$y_{max} = -1$

۲- حالت مایل
می کنیم

صفر بده

$x^2 - 2x = 1$

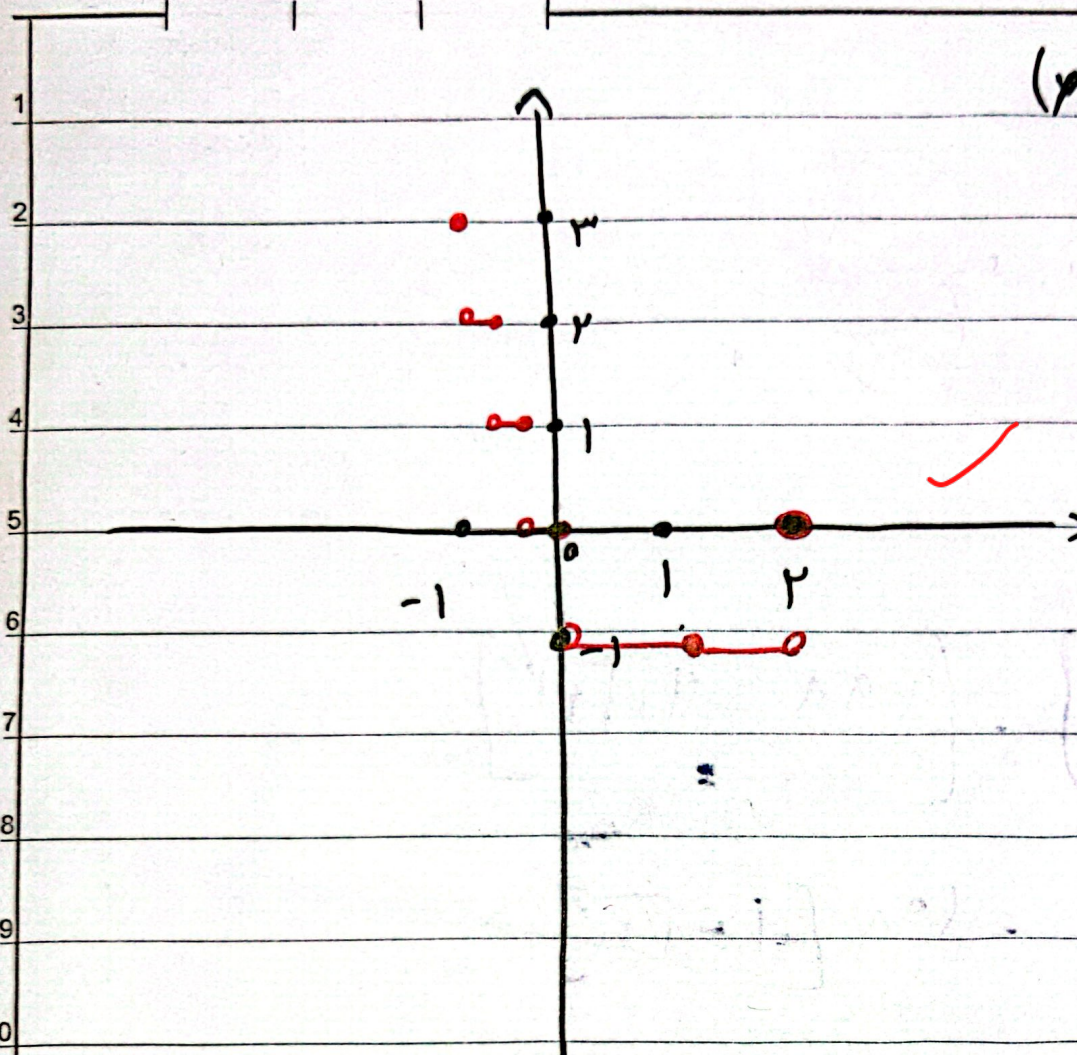
$x^2 - 2x - 1 = 0$

$x^2 - 2x = 2$

ESPADANA

Subject.

اداره سوال (۴)



Subject.

$[a]$: مجموع است
 $[b]$: مجموع است
 $a + [b] = 4, 3$, $b - [a] = 2, 4$ (۲) (۹)
 مجموع b برابر است با $4, 3$
 $[a]$: مجموع است
 $[a + [b]] = 4$, $[b - [a]] = 2$
 $[a] + [b] = 4$, $[b] - [a] = 2$

$\begin{cases} [a] + [b] = 4 \\ [b] - [a] = 2 \end{cases} \Rightarrow [a] = 1, [b] = 3 \Rightarrow b = 3, 4 \checkmark$
 $\hookrightarrow p_a = 1, 4 \Rightarrow a = 1, 4 \checkmark$

$a + b \Rightarrow 1, 4 + 3, 4 = 4, 4 \checkmark$

$(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 198$ (۱)
 $(1 - \sqrt{2})^4 = b$ (۲)

$[(1 + \sqrt{2})^4] = [198 - (1 - \sqrt{2})^4]$
 $1 - 1, 4 = -0, 4$
 $0 < (-0, 4)^4 < 1$
 مقداری بین ۰ و ۱ - باید باشد
 و رسیدن که یکمندی ندارد
 $0 < b < 1 \Rightarrow -1 < -b < 0 \Rightarrow 197 < 198 - b < 198$

$[198 - b] = 197$ $[198 - b] = [(1 + \sqrt{2})^4]$ ✓
 $[(1 + \sqrt{2})^4] = 197$