

Subject.

اسر صحتیائی تکلیف سی ۲ یا زدهم پیرد هسته مثبت است

(1) $\frac{1}{n-1} = |n-1|$ مسته مثبت $\Rightarrow \frac{1}{n-1}$ می

$|n-1| \geq 0 \Rightarrow \frac{1}{n-1} \geq 0 \Rightarrow n-1 \geq 0 \Rightarrow n \geq 1$

$|n-1| = \begin{cases} n-1 & n \geq 1 \\ -n+1 & n \leq 1 \end{cases} \Rightarrow \frac{1}{n-1} = n-1$
در اندیشه $\times$

$(n-1)^2 = 1 \Rightarrow n^2 - 2n + 1 = 1 \Rightarrow n^2 - 2n = 0 \Rightarrow n(n-2) = 0$
 $n=0$ $\times$ $n \geq 1$
 $n=2$ $\checkmark$

$n=2$

(۲)

$\left| \frac{n-2}{n+1} \right| > 1$

$\hookrightarrow n+1 \neq 0, n \neq -1$ (I)

$|n-2| > |n+1|$ $n \in \mathbb{R}$

$n^2 - 2n + 4 > n^2 + 2n + 1$

$n^2 + 4n - 3 < 0$

$\hookrightarrow n^2 + 4n - 3 = 0$

$n^2 + 4n - 3 = 0$

$(n-1)(n+3) = 0$

$n_1 = 1, n_2 = -3 \Rightarrow n_1 = \frac{1}{4}, n_2 = -2$

$\frac{-2}{+} \quad \frac{1}{+} \quad \text{II, -}$

$\left| \frac{n-1}{n} \right| < 2$

$|n-1| < 2|n|$

مستانه ۲ الیم

$n^2 - n + 1 < 4n^2$

$-n + 1 < 0 \quad | < 4n$

$\Rightarrow n > \frac{1}{4}$

$\Rightarrow I \cap II = n \in (-3, \frac{1}{4}) - \{-\frac{1}{4}\}$

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

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

$$\downarrow$$

$$(x^2 - m - 4) = 0 \quad \begin{cases} x = 2 \\ x = -2 \end{cases} \quad \begin{array}{c} -2 \quad 2 \\ + \quad | \quad - \quad | \quad + \end{array}$$

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

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

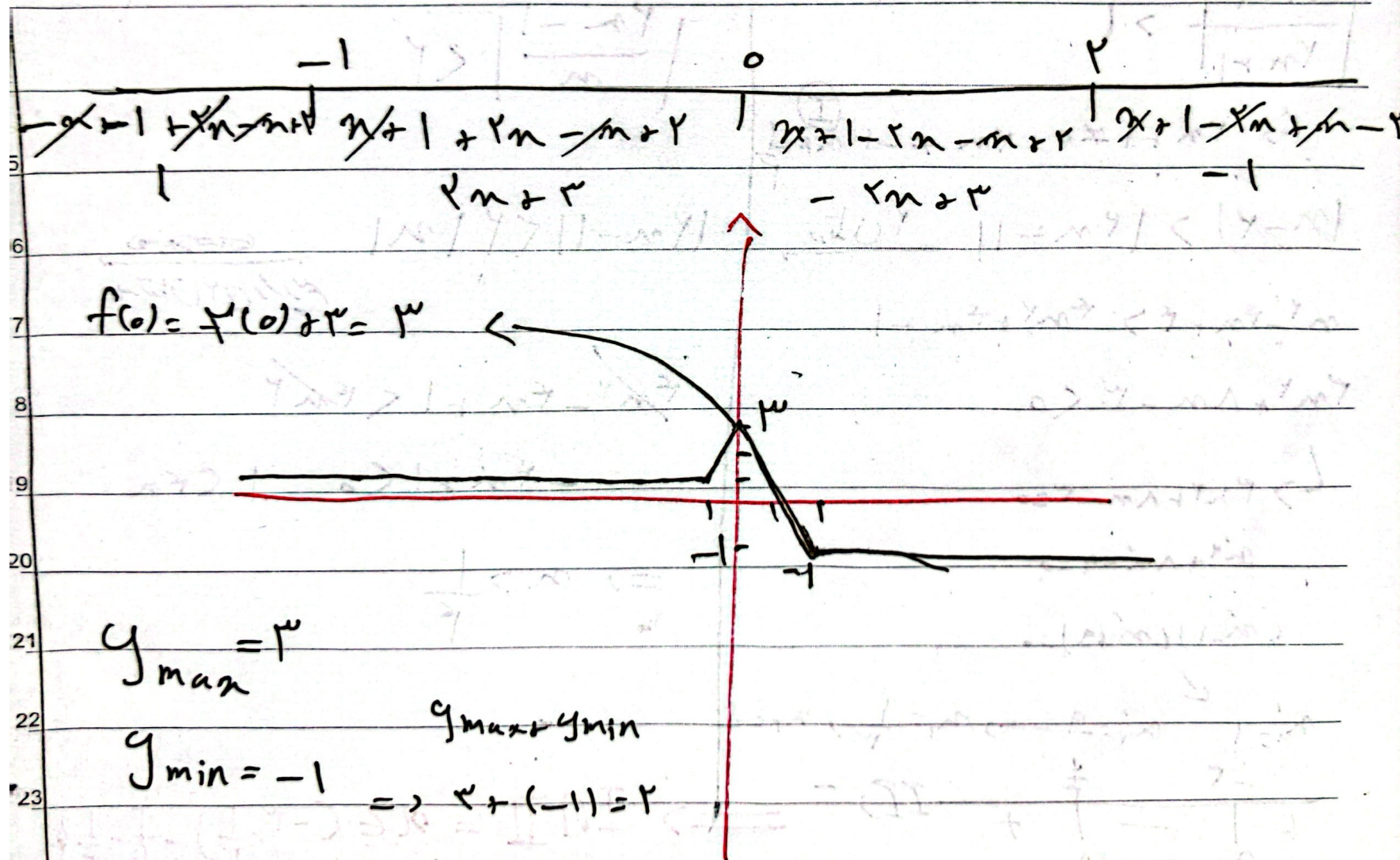
$$\left. \begin{aligned} \beta + \alpha < m < \beta + \alpha \\ -2 < m < 2 \end{aligned} \right\} \Rightarrow$$

$$\begin{cases} \beta + \alpha = 2 \\ -\beta + \alpha = -2 \end{cases} \Rightarrow \beta = \frac{0}{2}, \quad \boxed{\alpha = \frac{1}{2}}$$

$$g = |n+1| - |r|n + |n-r|$$

$\leftarrow m = -1$ $\leftarrow m = 0$ $\leftarrow m = r$

(r)



ESPADANA

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

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

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

$$n = a$$

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

$$n = -r$$

$$n = -r$$

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

$$r = 1$$

$$-n - r = 1$$

$$-r = 1$$

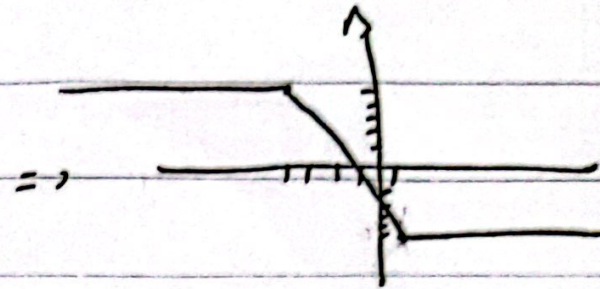
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$$n = -r \checkmark \dots \dots \dots \checkmark$$

$$\text{الف) } f(n) = [|1-n| - |n+\epsilon|] \quad (9)$$

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

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



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

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

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

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

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

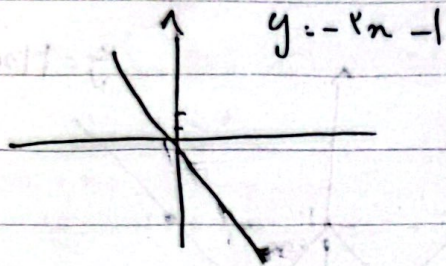
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$$y = [-2n] - 1$$

$$-1 < n < 1$$

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

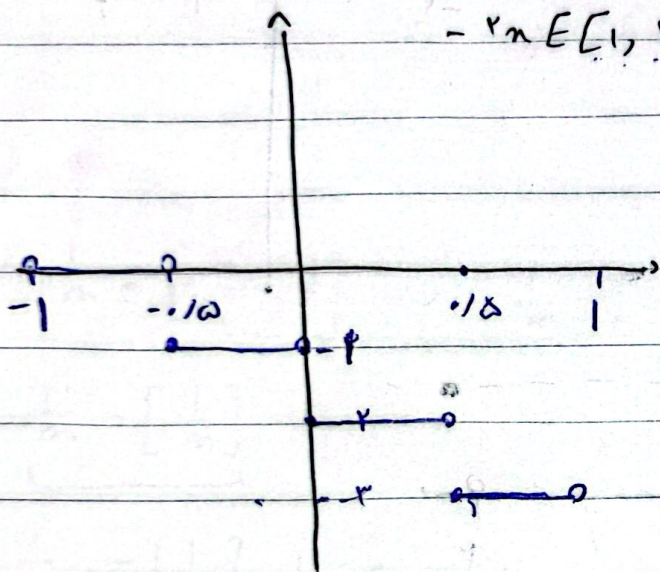


$$-2n \in (-2, -1) \rightarrow [-2n] = -2 \rightarrow y = -3$$

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

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

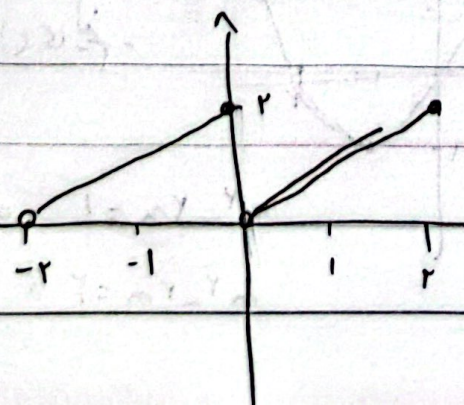
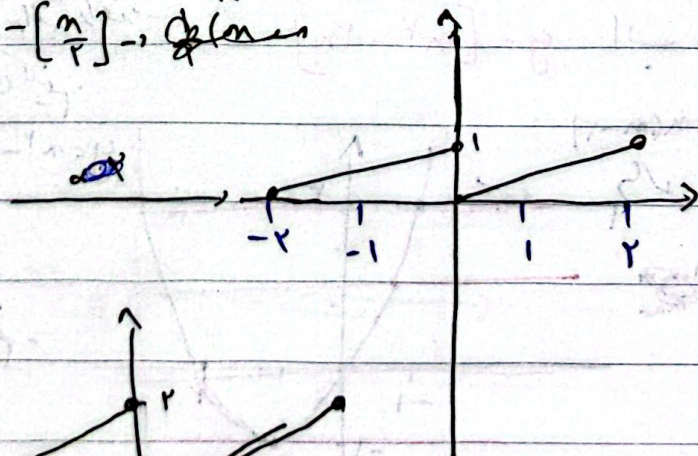
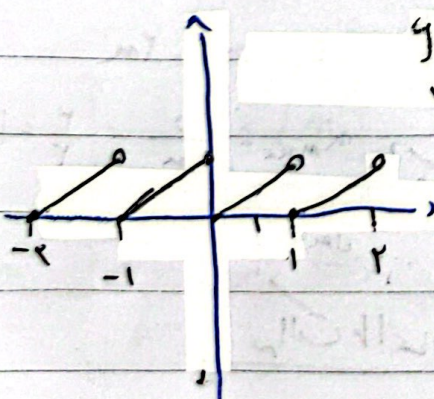
$$-2n \in [1, 2) \rightarrow [-2n] = 1 \rightarrow y = 0$$



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

طول کسری آن برابر است با $\frac{1}{2}$ یعنی $\frac{1}{k}$

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



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الف) $y = [|x| - 1]$

$y = |x| - 1$

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$y = [|x| - 1]$

ب) $y = [x^2 - 2x]$

۱- حالت رافند 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 لایحه می کنیم.

صفر بعد.

$x^2 - 2x = 1$

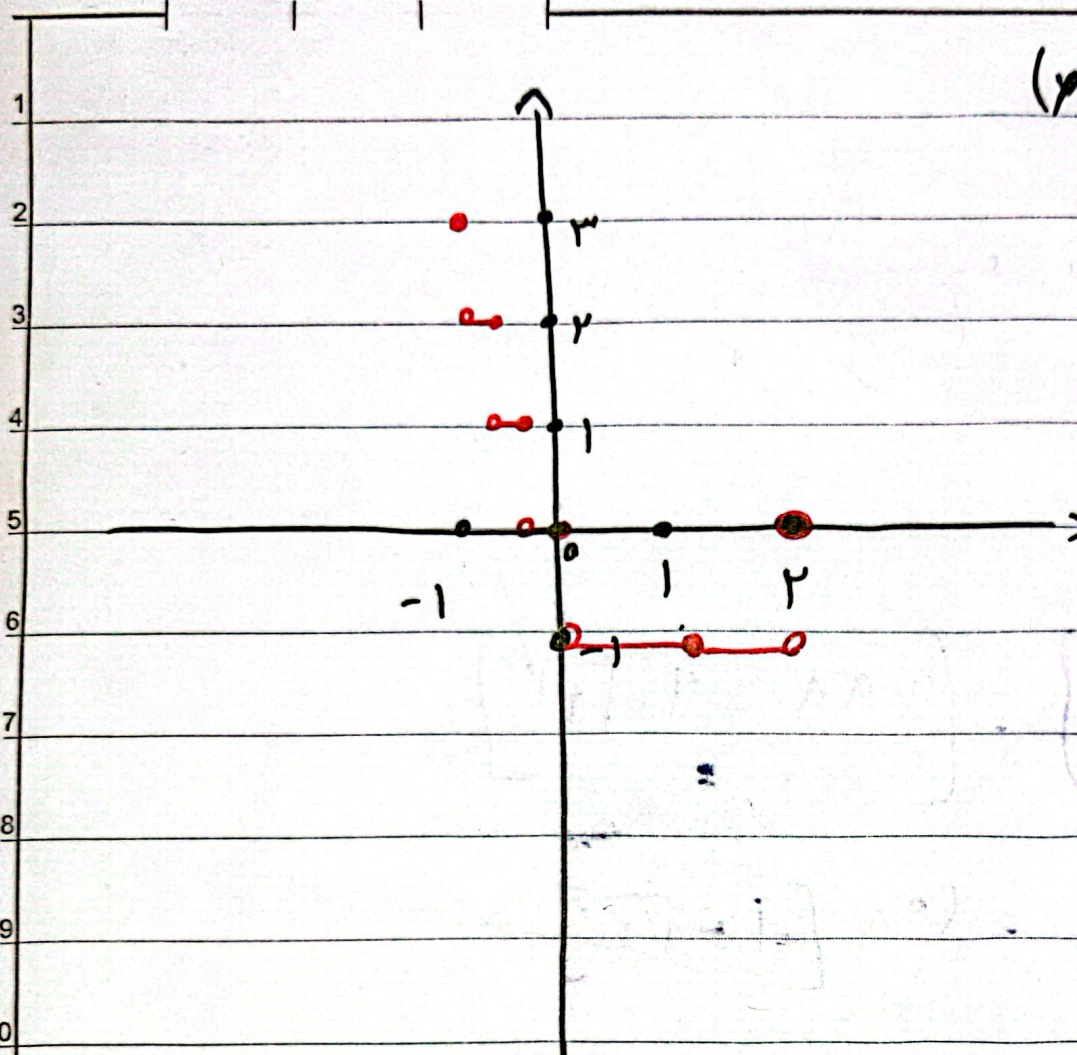
$x^2 - 2x - 1 = 0$

$x^2 - 2x = 2$

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اداره سوال (۴)



Subject.

$[a]$: مجموع است
 $[b]$: مجموع است
 $a + [b] = 4, 3$, $b - [a] = 2, 4$ (9)
 $[a + [b]] = 4$, $[b - [a]] = 2$
 $[a] + [b] = 4$, $[b] - [a] = 2$

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

$a + b \Rightarrow 1, 2 + 3, 4 = 4, 4$

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

$[(1 + \sqrt{2})^4] = [198 - (1 - \sqrt{2})^4]$
 $0 < b < 1$, $-1 < -b < 0$, $197 < 198 - b < 198$
 $[198 - b] = 197$

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