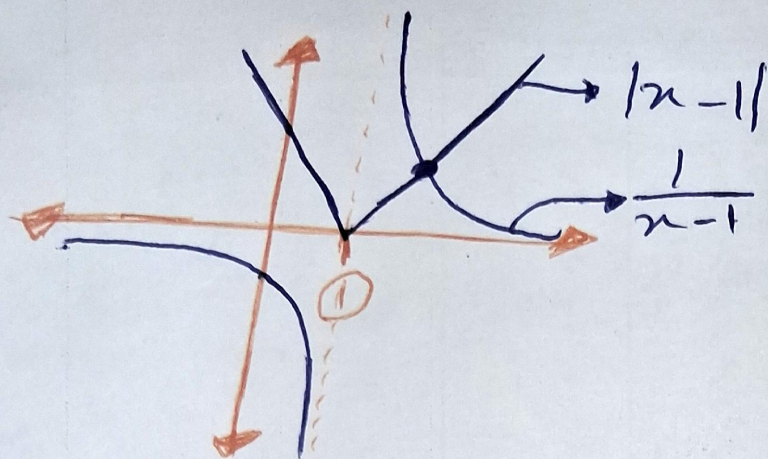


* بیان تحفزی *

①



⇒ یک ریشه دارد

②

الف) $-2 < \frac{x-1}{x} < 2 \Rightarrow$

$$-2 < \frac{x-1}{x} \Rightarrow \frac{x-1}{x} + 2 > 0 \Rightarrow \frac{x + 2x - 1}{x} > 0$$

$$\Rightarrow \frac{x+1}{x} > 0 \Rightarrow \frac{0}{+} - \frac{1}{-} = +$$

$$\frac{x-1}{x} < 2 \Rightarrow \frac{x-1}{x} - 2 < 0 \Rightarrow \frac{x - 2x - 1}{x} < 0$$

$$\Rightarrow \frac{-1}{x} < 0 \Rightarrow \frac{0}{+} - \frac{1}{+} = -$$

$$\Rightarrow \left[\frac{1}{2}, +\infty \right)$$

ب) $\frac{x-2}{x+1} > 1, \frac{x-2}{x+1} < -1 \Rightarrow$

$$\frac{x-2}{x+1} - 1 > 0 \Rightarrow \frac{x-2-x-1}{x+1} = \frac{-2x-3}{x+1} > 0$$

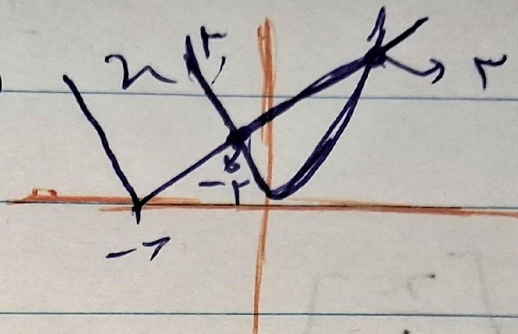
$$\Rightarrow \frac{-2}{-} - \frac{3}{+} = -$$

$$\frac{x-2}{x+1} + 1 < 0 \Rightarrow \frac{x-2+x+1}{x+1} = \frac{2x-1}{x+1} < 0$$

$$\begin{array}{c} -\frac{1}{r} \quad -\frac{1}{r} \\ + \quad - \quad + \end{array}$$

$$\Rightarrow \left(-\frac{1}{r} \text{ or } \frac{1}{r}\right) \cup \left(-r, -\frac{1}{r}\right)$$

$$(5) \quad x^2 < |x+6| \Rightarrow \begin{array}{c} x^2 \\ x^2 = x+6 \end{array} \Rightarrow -2x < 6$$



$$x = -2 \leq 3$$

$$\Rightarrow \frac{-2+3}{2} = 0.5, \quad \frac{3-(-2)}{2} = 2.5 \Rightarrow |x - 0.5| < 2.5$$

$$(5) \quad -1, 0, 2 \xrightarrow{\text{بجای}} x$$

$$\begin{array}{ccc} \uparrow & \uparrow & \uparrow \\ \textcircled{1} & \textcircled{3} & \textcircled{-1} \end{array}$$

$$\downarrow$$

$$\textcircled{-1}$$

بزرگترین: 3

کوچکترین: -1

$$3-1 = \textcircled{2}$$

$$(5) \quad \left| \frac{1}{2}(x+5) \right| - 2 + 1 = \left| \frac{1}{2}x \right| - 2$$

$$\frac{1}{2}|x+5| + 1 = \frac{1}{2}|x|$$

$$|x+5| + 2 = |x|$$

$$\Rightarrow x+5+2 = -x$$

$$2x = -7$$

$$\textcircled{x = -3.5}$$

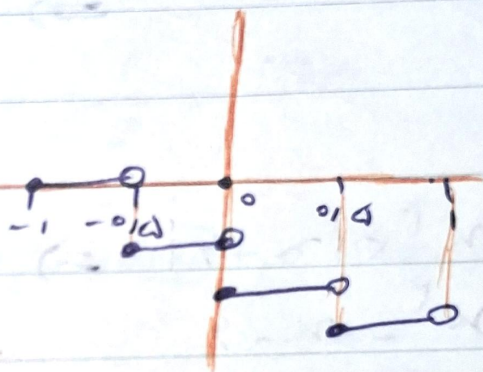
الف) $\lfloor |n-1| - |n+3| \rfloor$
 $R = [-0, 0] \Rightarrow R_f = \{\pm 0, \pm 1, \pm 2, \pm 3, \pm 4, 0\}$

ب) $\frac{1}{n} - \lfloor \frac{1}{n} \rfloor - 1 \Rightarrow t - \lfloor t \rfloor - 1$
 $0.5t - \lfloor t \rfloor < 0$

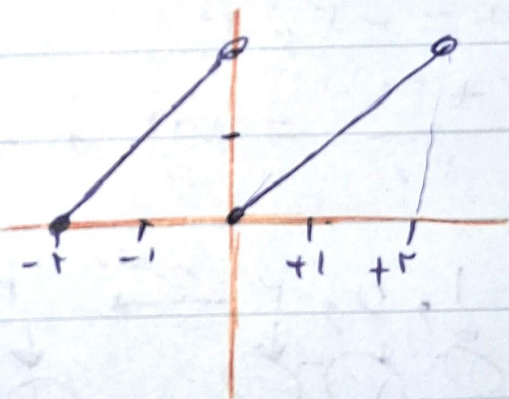
$\Rightarrow -kt - \lfloor t \rfloor - 1 < 0 \Rightarrow R_f = [-1, 0)$

✓

الف) $y = \lfloor -tm \rfloor - 1$



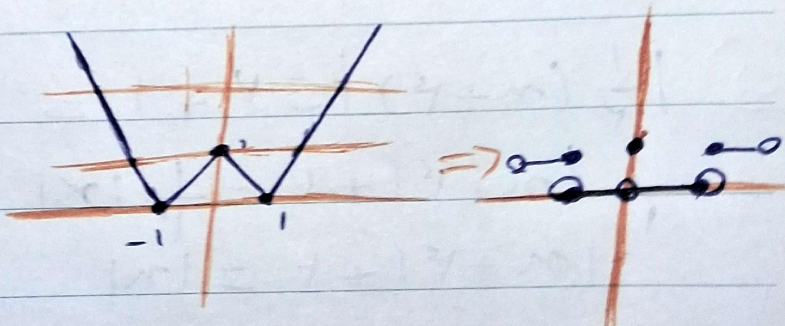
ب) $y = n - 2 \lfloor \frac{n}{2} \rfloor$



A

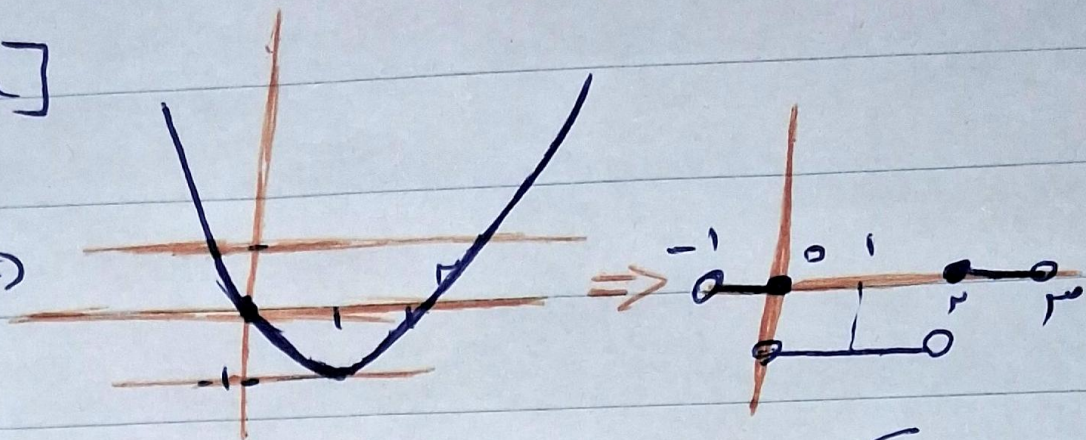
الف) $y = \lfloor |n-1| - 1 \rfloor$

$|n-1| \Rightarrow$



ب) $y = [x^2 - 2x]$

$x^2 - 2x \Rightarrow$



$a + [b] = 4, 2 \Rightarrow [a + [b]] = 4 \Rightarrow [a] + [b] = 4$
 $b - [a] = 2, 4 \Rightarrow [b - [a]] = 2 \Rightarrow [b] - [a] = 2$
 $\Rightarrow [a] = 1, [b] = 3 \Rightarrow b = 3, 4 \Rightarrow a + b = 4, 6$
 $a = 1, 2$

10) $(1 + \sqrt{2})^6 = t \Rightarrow t + \frac{1}{t} = 198$

چون $\frac{1}{t}$ عدد بسیار کوچکی است پس t باید نزدیک به 198 باشد

یعنی $197, -$ پس $[197, -] = [197, -] = 197$