

18.10

$$\frac{1}{x-1} = |x-1| \xrightarrow{(1)} x > 1 \rightarrow \frac{1}{x-1} = x-1 \rightarrow x^2 - x + 1 = 1 \rightarrow x(x-1) = 0$$

$$x \neq 1 \rightarrow x < 1 \rightarrow \frac{1}{x-1} = 1-x \rightarrow -x^2 + x + 1 = 1 \rightarrow x(x+1) = 0$$

$$\textcircled{1} \rightarrow x = 1 \text{ غير محقق}$$

$$x = 1 \rightarrow 0 \cdot 0 \cdot 1 \rightarrow \Delta < 0$$

$$\left| \frac{x-1}{x} \right| < 1 \Rightarrow -1 < \frac{x-1}{x} < 1 \xrightarrow{\cdot x} \begin{cases} x-1 < x \\ x-1 > -x \end{cases} \rightarrow \begin{cases} 0 < 1 \\ x > -x \end{cases} \rightarrow \begin{cases} \text{صح} \\ x > 0 \end{cases}$$

$$\left| \frac{x-1}{x} \right| > 1 \Rightarrow \frac{x-1}{x} > 1 \text{ or } \frac{x-1}{x} < -1 \rightarrow \begin{cases} x-1 > x \\ x-1 < -x \end{cases} \rightarrow \begin{cases} -1 > 1 \\ x < -x \end{cases} \rightarrow \begin{cases} \text{خطأ} \\ x < 0 \end{cases}$$

$$x^2 < x + 1 \rightarrow x^2 - x - 1 < 0 \rightarrow (x - \frac{1+\sqrt{5}}{2})(x - \frac{1-\sqrt{5}}{2}) < 0$$

$$-x^2 > x + 1 \rightarrow x^2 + x + 1 < 0 \rightarrow \Delta < 0$$

$$-x^2 < x + 1 \rightarrow x^2 + x + 1 > 0 \rightarrow \Delta < 0$$

$$|x-1| = |x| \rightarrow x = 1 \text{ or } x = 0$$

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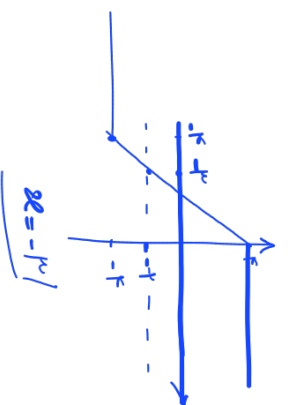
$$|x-1| = |x| \rightarrow x = 1 \text{ or } x = 0$$

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$$x \in (-\frac{1}{2}, \frac{1}{2}) \cup (\frac{1}{2}, \frac{3}{2})$$

$$y = \frac{1}{x} \rightarrow x + y = 1$$



$-r, y, 1 - a - n - \{$
 $-r = r_m + r$
 $-r = -r_m - r$
 $-9, r_m - r$
 $\Rightarrow [1 - x] - [x + r] \Rightarrow \frac{1}{x} - \left[\frac{x+r}{x} \right] \rightarrow \frac{1}{x} - \left[1 + \frac{1}{x} \right]$
 $\Rightarrow R_f = \{ \dots, -9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 \}$
 $\Rightarrow \frac{1}{x} - \left[\frac{x+r}{x} \right] \rightarrow \frac{1}{x} - \left[1 + \frac{1}{x} \right]$
 $\Rightarrow \frac{1}{x} - \left[\frac{1}{x} \right] - 1 \rightarrow \frac{1}{x} - \left[\frac{1}{x} \right] < 1 \rightarrow -1 \leq \frac{1}{x} < 0$

$y = [-x] - 1$
 $x \in (-1, 1) \rightarrow \frac{-1}{x} \leq x < \frac{x-r}{x} \rightarrow 0 - 1 = -1$
 $0 \leq x < \frac{1}{x} \rightarrow \frac{x-r}{x} \rightarrow 0 - 1 = -1$
 $\frac{-1}{x} \leq x < \frac{x-r}{x} \rightarrow 0 - 1 = -1$
 $\frac{1}{x} \leq x < \frac{x-r}{x} \rightarrow 0 - 1 = -1$
 $-1 \leq x < \frac{1}{x}$
 $y = x - r \left[\frac{x}{r} \right]$
 $x \in (-r, r) \rightarrow 0 \leq x < r \rightarrow \frac{x-r}{x} \rightarrow 0 - 1 = -1$
 $0 \leq x < r \rightarrow \frac{x-r}{x} \rightarrow 0 - 1 = -1$

$[|x| - 1]$
 $x \in [-r, r] \rightarrow -r \leq x < 0 \rightarrow [-x - 1] \rightarrow 1$
 $0 \leq x < r \rightarrow [x - 1] \rightarrow 0$
 $-r \leq x < -1 \rightarrow [-x - 1] \rightarrow 1$
 $-1 \leq x < 0 \rightarrow [x + 1] \rightarrow 0$
 $0 \leq x < 1 \rightarrow [x + 1] \rightarrow 1$
 $1 \leq x < r \rightarrow [x - 1] \rightarrow 0$
 $[x^2 - rx]$
 $x \in [-1, 1]$
 $-1 \leq x < 0 \rightarrow 1$
 $0 \leq x < 1 \rightarrow 0$
 $1 \leq x < r \rightarrow 0$

$b - [a] = r, r \rightarrow b = [a] + r, r$
 $a + [b] = r, r \rightarrow a + [[a] + r, r] = r, r$
 $a + r + [a] = r, r \rightarrow a + [a] = r, r \rightarrow \begin{cases} r, r - [a] = a \\ r, r + [a] = b \end{cases} \rightarrow a + b = r, r$

$(1 + \sqrt{r})^4 + (1 - \sqrt{r})^4 = 19\lambda \Rightarrow (1 + \sqrt{r})^4 = 19\lambda - (1 - \sqrt{r})^4$
 $[(1 + \sqrt{r})^4] = [19\lambda - (1 - \sqrt{r})^4] = 19\lambda - 1 = 19\lambda - 1 = 19\lambda - 1$