

نمایش سازه تکراری

بازدهم هست

کلیف که ۲۰

①

$$\frac{1}{n-1} = |n-1|$$

$$n=1 \rightarrow \text{درجه صفر نمی‌کند}$$

$$n > 1 \rightarrow n^2 - 2n + 1 = 1$$

$$n^2 - 2n = 0 \rightarrow \begin{cases} n=0 \\ n=2 \end{cases}$$

$$n < 1 \rightarrow -n^2 + 2n - 1 = 1$$

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

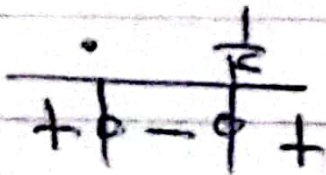
$$n^2 - 2n + 2 = 0 \rightarrow \Delta < 0$$

معادله مورد تکرار ریشه ندارد

②

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

$$-2 < \frac{2n-1}{n} < 2 \rightarrow \frac{2n-1}{n} < 2$$



$$\frac{2n-1}{n}$$

$$n \in (-\infty, 0) \cup (\frac{1}{2}, +\infty)$$

$$\frac{1}{n} < 0 \rightarrow n < 0$$

$$(-1, +\infty) \cap ((-\infty, 0) \cup (\frac{1}{2}, +\infty)) = \boxed{(\frac{1}{2}, +\infty)}$$

$$b) \left| \frac{x-r}{r_m-1} \right| > 1 \rightarrow \frac{x-r}{r_m-1} > 1 \rightarrow \frac{-x-1}{r_m-1} > 0 \quad \frac{-1}{-1} + \frac{1}{-1}$$

$$x \in (-1, \frac{1}{r})$$

$$\frac{x-r}{r_m-1} < -1 \rightarrow \frac{r_m-r}{r_m-1} < 0$$

$$\frac{\frac{1}{r}}{+1} - \frac{1}{-1} +$$

$$x \in (\frac{1}{r}, 1)$$

$$(-1, \frac{1}{r}) \cup (\frac{1}{r}, 1) = \boxed{(-1, 1) - \{\frac{1}{r}\}}$$

$$x^r < |x+4| \rightarrow x > -4 \rightarrow x^r - x - 4 < 0 \quad \frac{-r}{+1} \frac{r}{-1} +$$

$$x \in (-r, r)$$

$$x < -4 \rightarrow x^r + x + 4 < 0$$

$$\frac{-r}{+1} \frac{r}{-1} +$$

$$(-\infty, -4) \cap (-r, r) = \emptyset$$

$$-r < x < r$$

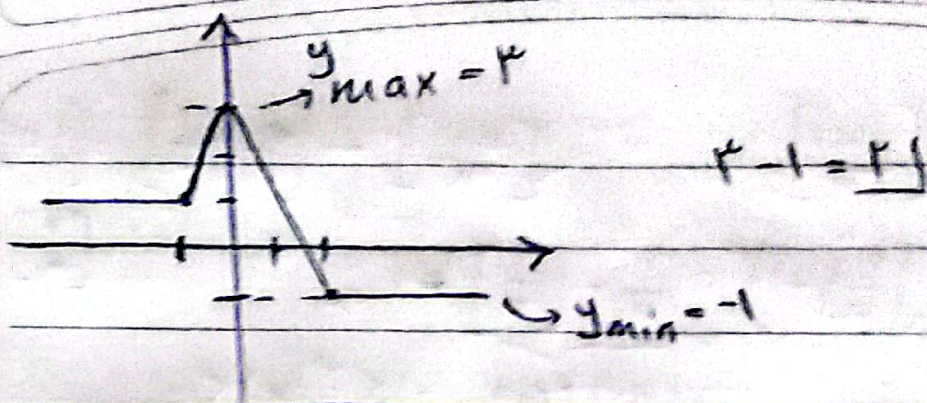
↓

$$\frac{r+(-r)}{r} = \frac{1}{r} \rightarrow -\frac{r}{r} < x - \frac{1}{r} < \frac{r}{r} \rightarrow \left| x - \frac{1}{r} \right| < \frac{r}{r}$$

$$\boxed{x = \frac{1}{r}}$$

$$y = |x+1| - |r_m| + |x-r| \quad (15)$$

$x < -1$	$-1 < x < 0$	$0 < x < r$	$x > r$
$-x-1+r_m+r-x$	$x+1+r_m+r-x$	$x+1-r_m+r-x$	$x+1-r_m+x-r = -1$
1	r_m+r	$-r_m+r$	-1



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

$$\left| \frac{1}{r}x \right| - r = \left| \frac{1}{r}x + 1 \right| - 1 \rightarrow x = 0 \rightarrow \frac{1}{r}x = \frac{1}{r}x + r \rightarrow \bar{0} \bar{0} \bar{0}$$

$$- \varepsilon < x < 0 \rightarrow -\frac{1}{r}x - r = \frac{1}{r}x + 1$$

$$\boxed{-r = x}$$

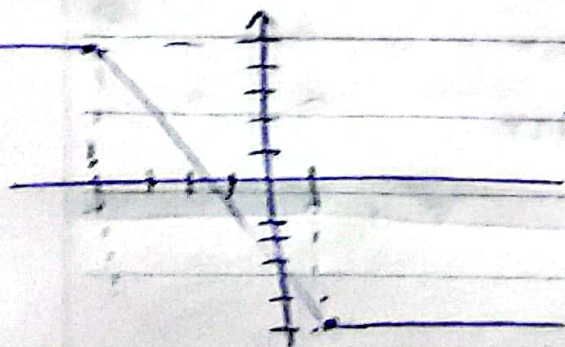
$$x < -\varepsilon \rightarrow -\frac{1}{r}x - r = -\frac{1}{r}x - r \rightarrow \bar{0} \bar{0} \bar{0}$$

$$x = 0 \rightarrow -r = r - 1 \quad \times$$

$$x = -r \rightarrow 0 = -1 \quad \times$$

$$2) f(x) = [|1-x| - |x+r|] = [|x-1| - |x+r|] \quad (7)$$

$$|x-1| - |x+r| \rightarrow \begin{array}{c|c|c|c} x < -\varepsilon - r & -r & -f(x) & |x| \\ \hline 1-x & x+r & 1-x-x & x-1-x-r = \\ \hline \Delta & \Delta & -r & -\Delta \end{array}$$



$$\rightarrow [|x-1| - |x+r|] \Rightarrow$$

$$R_f = \{ -\Delta, -r, -r, -r, -1, 0, 0, 1, r, r, \Delta \}$$

$$b) f(x) = \frac{1}{x} - \left[\frac{x+1}{x} \right]$$

$$\left[\frac{x+1}{x} \right] = \left[\frac{x}{x} + \frac{1}{x} \right] = \left[1 + \frac{1}{x} \right]$$

$$\frac{1}{x} - \left(\left[\frac{1}{x} \right] + 1 \right) = \frac{1}{x} - \left[\frac{1}{x} \right] - 1 \Rightarrow$$

$$-1 < y < 1$$

$$-1 < f(x) < 0$$

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

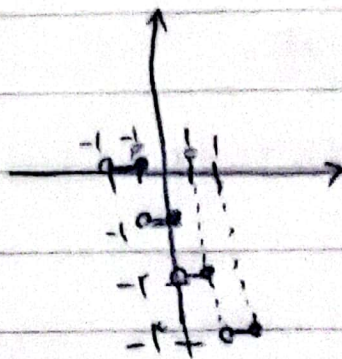
$$y = [-x] - 1 \quad x \in (-1, 1) \quad (v)$$

$$x \in (-1, -\frac{1}{2}] \rightarrow -x \in [\frac{1}{2}, 1) \rightarrow [-x] - 1 = 0$$

$$x \in (-\frac{1}{2}, 0] \rightarrow -x \in (0, \frac{1}{2}] \rightarrow [-x] - 1 = -1$$

$$x \in (0, \frac{1}{2}] \rightarrow -x \in [-\frac{1}{2}, 0) \rightarrow [-x] - 1 = -1$$

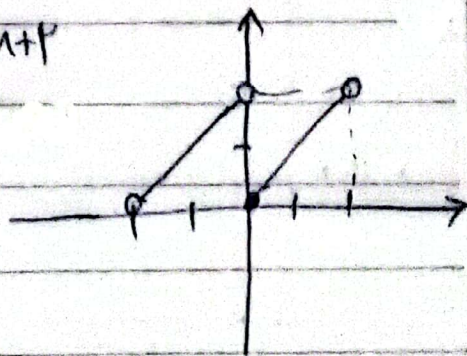
$$x \in (\frac{1}{2}, 1) \rightarrow -x \in (-1, -\frac{1}{2}) \rightarrow [-x] - 1 = -2$$



$$b) y = x - 2 \left[\frac{x}{2} \right] \quad x \in (-2, 2)$$

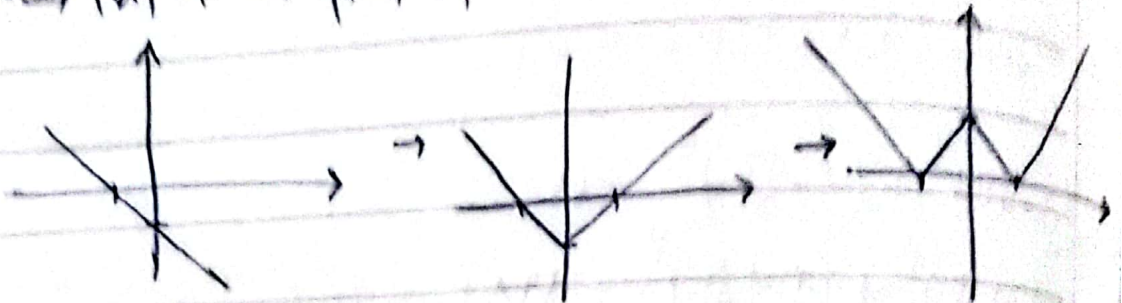
$$x \in (-2, 0) \rightarrow y = x - 2(-1) \rightarrow y = x + 2$$

$$x \in [0, 2) \rightarrow y = x - 2(0) \Rightarrow y = x$$

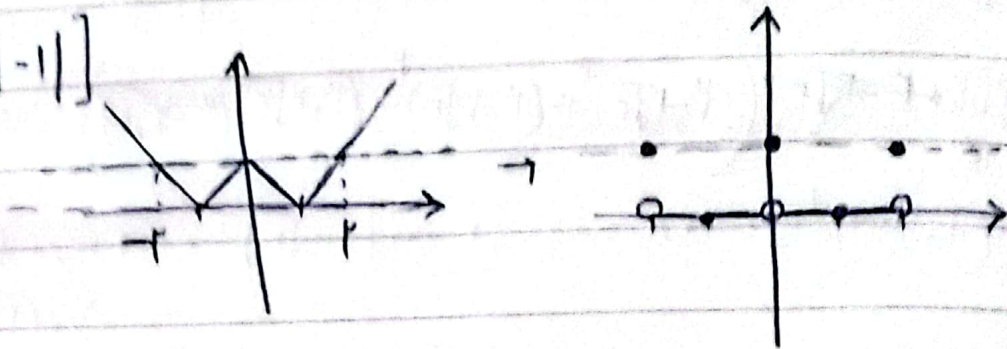


$$a) y = [|x| - 1] \quad x \in [-2, 2]$$

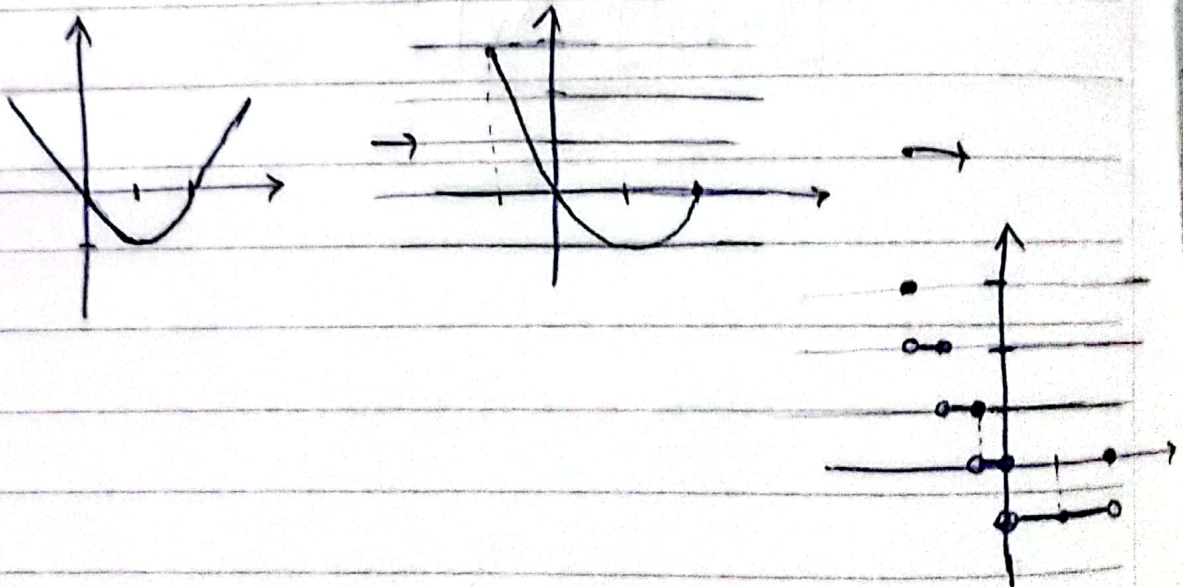
$$x = 1 \rightarrow |x| = 1 \rightarrow ||x| - 1|$$



$$[|x| - 1]$$



$$b) y = [x^2 - 1] \quad x \in [-1, 1]$$



$$a + [b] = r, r \quad [a] + Q_1 = a \quad [a] + [b] + Q_1 = r, r \quad ①$$

$$b - [a] = r, r \quad [b] + Q_1 = b$$

$$Q_1 = -r$$

$$\hookrightarrow [b] - [a] + Q_1 = r, r \rightarrow Q_1 = -r$$

$$[a] + [b] \neq [a] + [b] + Q_1$$

$$\begin{aligned}
 + \begin{cases} [a] + [b] = 3 \\ [b] - [a] = 2 \end{cases} &\Rightarrow \begin{cases} 1[b] = 4 \rightarrow [b] = 4 \rightarrow b = [b] + Q_1 = 14 \\ [a] = 1 \rightarrow a = [a] + Q_1 = 11 \end{cases}
 \end{aligned}$$

$$a + b = 11 + 14 = 25$$

$$(1 + \sqrt{2})^4 + (1 - \sqrt{2})^4 = 198 \quad (10)$$

$$(3 + 2\sqrt{2})^3 - (3 - 2\sqrt{2})^3 = 18\sqrt{2} \rightarrow (1 + \sqrt{2})^4 - (1 - \sqrt{2})^4 = 18\sqrt{2}$$

$$(3 + 2\sqrt{2} - 3 + 2\sqrt{2})(14 + 12\sqrt{2} + 14 - 12\sqrt{2} + 1) = 18\sqrt{2}$$

$$2(1 + \sqrt{2})^4 = 198 + 18\sqrt{2} \rightarrow (1 + \sqrt{2})^4 = 99 + 9\sqrt{2}$$

$$V_0(1, K/K) =$$

$$(1 + \sqrt{2})^4 = 99 + 9\sqrt{2} + Q_1$$

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

$$98 \frac{99}{Q_1}$$

