

$$\frac{1}{n-1} = 1 - \frac{1}{n} \Rightarrow \frac{1}{n-1} (-n+1) = \dots \quad \frac{1}{n-1} = \frac{1}{n} + \frac{1}{n(n-1)}$$

نورمان لاسی
19, 25

$$\left| \frac{1}{n} \right| < \epsilon \Rightarrow \frac{1}{n} < \epsilon \Rightarrow n > \frac{1}{\epsilon}$$

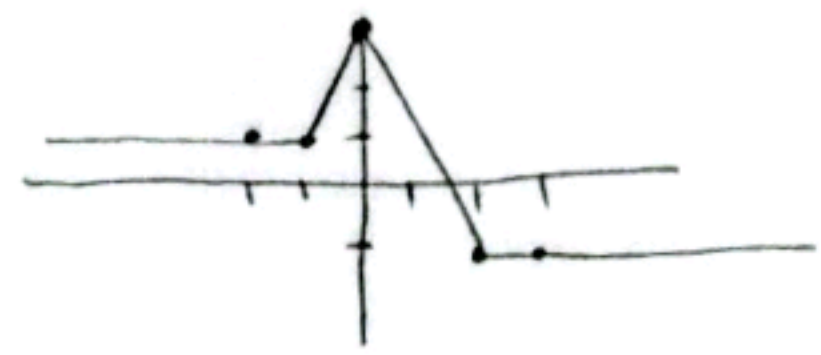
1, 75

$$\left| \frac{n-1}{n} \right| > 1 \Rightarrow \frac{n-1}{n} > 1 \Rightarrow -1 < \frac{n-1}{n} < 1 \Rightarrow -1 < 1 - \frac{1}{n} < 1 \Rightarrow 0 < \frac{1}{n} < 2 \Rightarrow n > \frac{1}{2}$$

5

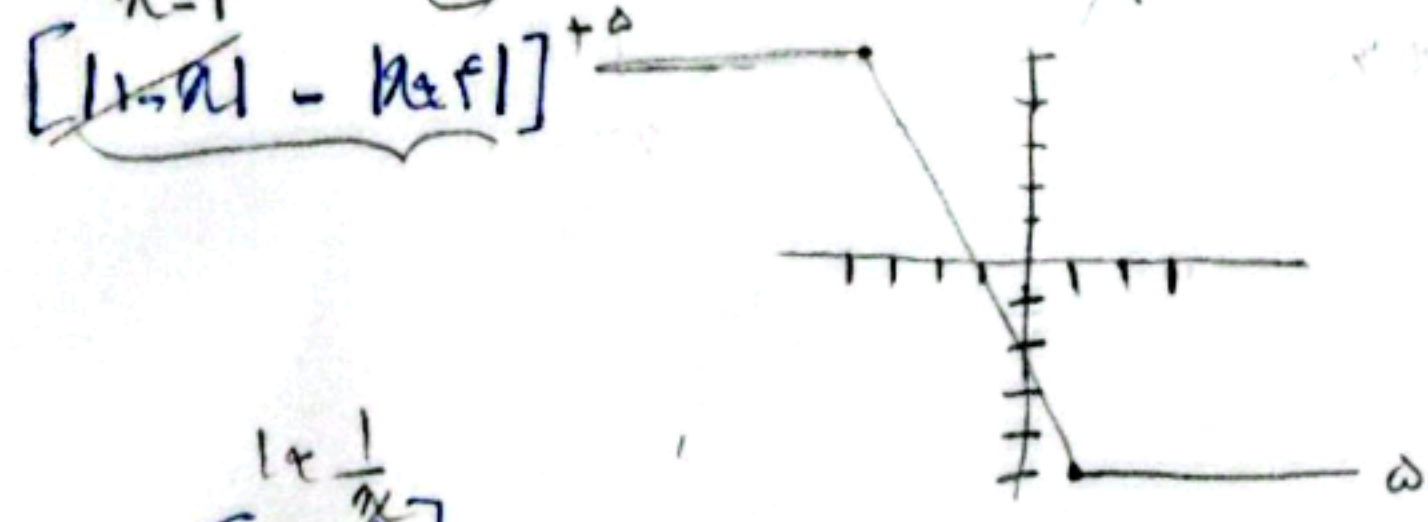
$$|a| < 1 \Rightarrow |a| < \frac{1}{2} \Rightarrow -\frac{1}{2} < a < \frac{1}{2}$$

$$|a| < 1 \Rightarrow |a| < \frac{1}{2} \Rightarrow -\frac{1}{2} < a < \frac{1}{2}$$



5

$$\left| \frac{1}{n} \right| < \epsilon \Rightarrow \frac{1}{n} < \epsilon \Rightarrow n > \frac{1}{\epsilon}$$



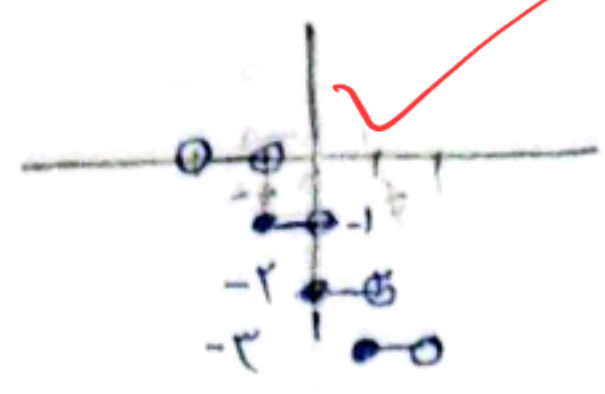
$$\{n \mid 1 \leq n \leq \frac{1}{\epsilon}, n \in \mathbb{Z}\}$$

1, 5

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

$$u_2[-ra] - 1 \quad a \in (-1, 1) \Rightarrow -1 < a < 1 \Rightarrow r > ra > -r - 1 \Rightarrow r > ra > -r$$

$$u_2 = a - r\left[\frac{a}{r}\right] \quad a \in (-r, r)$$



$$(-r-1) \begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} 0 & 1 \\ 1 & r \end{bmatrix} \begin{bmatrix} r \\ 1 \end{bmatrix}$$

$$= \begin{bmatrix} -r & r \\ -1 & -1 \end{bmatrix} \begin{bmatrix} -1 \\ 0 \end{bmatrix} \begin{bmatrix} 0 & 1 \\ 1 & r \end{bmatrix} \begin{bmatrix} r \\ 1 \end{bmatrix}$$

$$\begin{matrix} \downarrow & \downarrow \\ -r & -r \end{matrix}$$

5

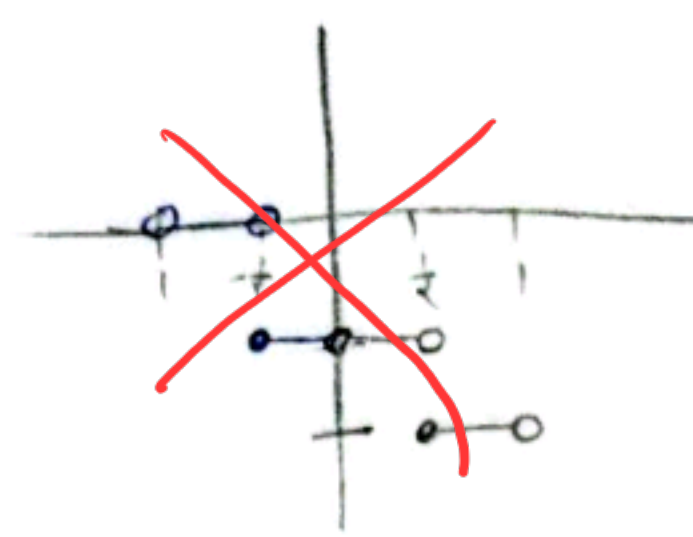
$$u_2[-ra] - 1 \quad a \in (-1, 1)$$

$$(-1 \quad -\frac{1}{r}) \Rightarrow 1 - 1 \geq 0$$

$$[-\frac{1}{r} \quad 0] \Rightarrow 0 - 1 \geq -1$$

$$[0 \quad \frac{1}{r}] \Rightarrow 0 - 1 \geq -1$$

$$[\frac{1}{r} \quad 1] \Rightarrow -1 - 1 \geq -r$$

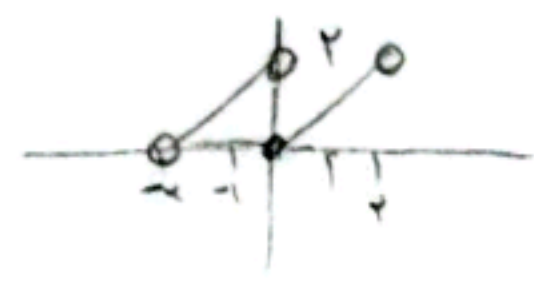


$$u_2 = a - r\left[\frac{a}{r}\right] \quad a \in (-r, r) \quad (-r \quad 0) \quad (0 \quad r)$$

$$a + \underbrace{-r(-1)}_r \quad a - \underbrace{r(0)}_r$$

$$(-r \quad 0) \Rightarrow r \quad \uparrow$$

$$(0 \quad r) \quad (0 \quad r)$$



$$u_2[|a| - 1] \quad a \in [-r, r]$$

$$\Rightarrow r \Rightarrow r - 1 \Rightarrow r$$

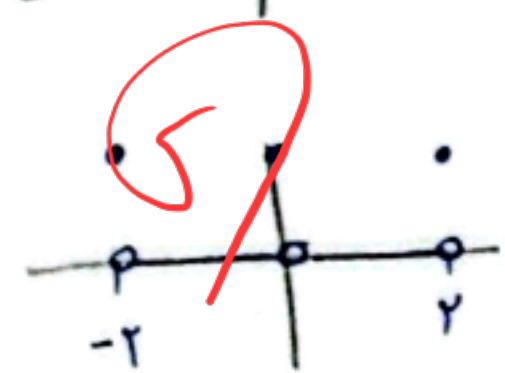
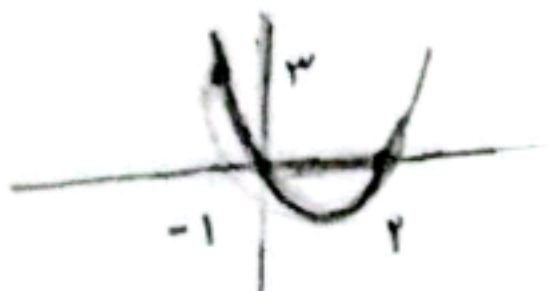


$$u_2[ra - ra] \quad a \in [-1, r]$$

$$-\frac{b}{ra} \geq \frac{y}{r} \geq 1 \Rightarrow 1 - r \geq -1$$

$$r \Rightarrow r - r \geq 0$$

$$-1 \Rightarrow 1 - r(-1) \geq r$$



$$[b - [a]] \in [r, f] \quad [a + [b]] \in [f, r] \quad a+b \Rightarrow f, y$$

$$[b] - [a] \geq r \quad [a] + [b] \geq f$$

$$[b] \geq r \quad [a] \geq 1 \quad a \Rightarrow 1, r \quad b \Rightarrow r, f$$

$$(1 + \sqrt{r})^r + \underbrace{(1 - \sqrt{r})^r}_{\substack{r < 1 \\ r^r < 1}} \geq 1 \quad [(1 + \sqrt{r})^r] \Rightarrow 19V$$