

← مراجعة

$$\frac{1}{n-1} = |n-1| \xrightarrow{n>1} \frac{1}{n-1} = n-1 \leftarrow$$

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

$$\rightarrow n^2 - 2n = 0 \rightarrow n(n-2) = 0$$

$$\rightarrow n=0, n=2$$

$$\xrightarrow{n<1} \frac{1}{n-1} = 1-n \rightarrow$$

$$1 = -(n-1)^2 \rightarrow$$

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

$$n^2 - 2n + 1 = 0 \rightarrow$$

$$\Delta = 4 - 4 = 0 \rightarrow \text{حالة واحدة}$$

$$\rightarrow n=1$$

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

$$\Rightarrow -x < \frac{xn-1}{n} \rightarrow \frac{xn-1}{n} + x > 0$$

$$\frac{xn-1+xn}{n} > 0 \rightarrow \frac{2xn-1}{n} > 0$$

$$\begin{array}{c} 0 \\ \hline + \quad - \end{array} \quad \begin{array}{c} 1/x \\ \hline + \quad - \end{array} \quad \textcircled{1}$$

$$\Rightarrow \frac{xn-1}{n} < x \rightarrow \frac{xn-1}{n} - x < 0$$

$$\Rightarrow -\frac{1}{n} < 0 \rightarrow \frac{1}{n} > 0 \rightarrow n > 0 \quad \textcircled{2}$$

$\textcircled{1} \cap \textcircled{2}$

$$\Rightarrow n > \frac{1}{x} \quad n \in \left(\frac{1}{x}, +\infty \right)$$

$$\left| \frac{n-x}{x(n+1)} \right| > 1 \rightarrow \frac{n-x}{x(n+1)} > 1 \rightarrow \quad \text{for } x$$

$$\frac{n-x-x(n+1)}{x(n+1)} > 0 \rightarrow \frac{-n-x}{x(n+1)} > 0$$

$$\begin{array}{c} -n \quad -1/x \\ \hline - \quad + \end{array} \quad \textcircled{2}$$

$$\frac{n-1}{1/n+1} < -1 \rightarrow \frac{n-1+1/n+1}{1/n+1} < 0$$

$$\frac{1/n-1}{1/n+1} < 0 \rightarrow \begin{array}{c|c} -1/n & 1/n \\ \hline + & - \end{array} \quad \textcircled{2}$$

$$\textcircled{1}, \textcircled{2} \rightarrow -1 < n < 1/n \subseteq (-1, -1/n)$$

$$n^2 < |n+1| \rightarrow n+1 > n^2 \quad \leftarrow n$$

$$\rightarrow n^2 - n - 1 < 0 \rightarrow (n-1/2)(n+1/2) < 0$$

$$\rightarrow \begin{array}{c|c} -1/2 & 1/2 \\ \hline + & - \end{array} \quad \textcircled{1}$$

$$\rightarrow n+1 < -n^2 \rightarrow n^2 + n + 1 < 0$$

$$\rightarrow 1-1/4 < 0$$

$$|n-\alpha| < \beta \Rightarrow -\beta < n-\alpha < \beta \xrightarrow{+\alpha}$$

$$\alpha - \beta < n < \alpha + \beta \quad \textcircled{2}$$

$$\textcircled{1}, \textcircled{2} \rightarrow \begin{array}{l} \alpha - \beta = -1 \\ \alpha + \beta = 1 \end{array} \Rightarrow 1/\alpha \geq 1 \rightarrow \alpha = 1/4$$

$$g = |x+1| - |x| + |x-1|$$

↖ ↗

-1	0	1
$-x-1+x$	$x+1-x$	$x+1-x$
$-x+x$	$-x+x$	$x+1-x$
$= 1$	$= 1$	$= 1$

$$-1+x = 1$$

$$g = |x| - 1$$

↖ ↗

0
$-x-1$
$x-1$

$$\frac{1}{2}x - 1 = -\frac{1}{2}x - 1$$

$$x = 0$$

$$f(x) = [|x| - |x+1|]$$

↖ ↗ ↘ ↙

-1	0	1
$1-x+x$	$1-x-x$	$x-1-x$
$= 1$	$= -1$	$= -1$

$$-1 \leq |x| - |x+1| \leq 1$$

$$\Rightarrow [1-n-1n+k] =$$

$$\{-\omega, -\kappa, \dots, \kappa, \omega\}$$

$$\Rightarrow R_f = \{\pm \omega, \pm \kappa, \pm \nu, \pm \mu, \pm 1, 0\}$$

$$f(n) = \frac{1}{n} - \left[\frac{n+1}{n} \right] = \frac{1}{n} - \left[\frac{1}{n} \right] + 1 \leftarrow \text{?} \leftarrow \text{?}$$

$$\Rightarrow 0 < t < 1 \Rightarrow 1 < t+1 < 2 \Rightarrow R_f = (1, 2)$$

$$g = [-\nu n] - 1$$

$$\leftarrow \text{?} \leftarrow \text{?}$$

$$-1 < n \leq -\frac{1}{\nu} \Rightarrow -1 < -\nu n < \nu \Rightarrow [-\nu n] = 1$$

$$\Rightarrow g = 0$$

$$-\frac{1}{\nu} < n \leq 0 \rightarrow 0 \leq -\nu n < 1 \Rightarrow [-\nu n] = 0$$

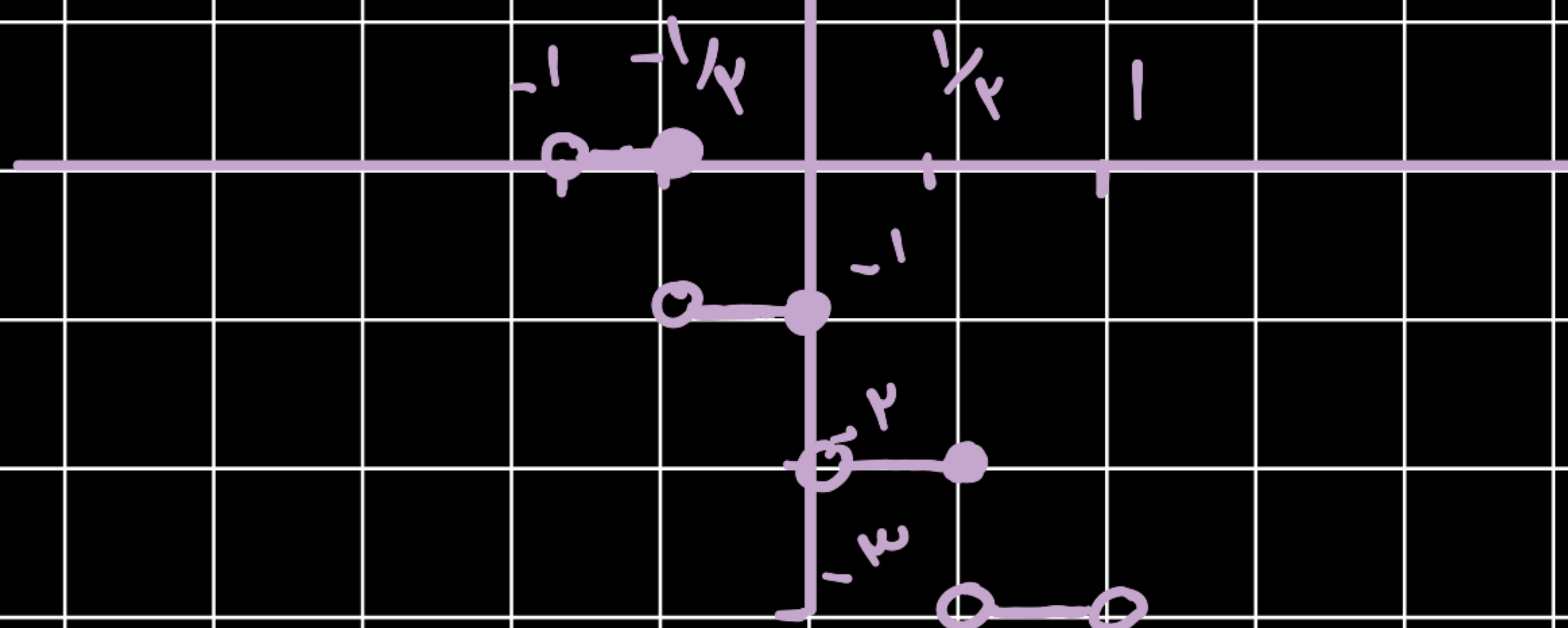
$$\Rightarrow g = -1$$

$$0 < n \leq \frac{1}{\nu} \Rightarrow -1 \leq -\nu n < 0 \Rightarrow [-\nu n] = -1$$

$$\Rightarrow y = x - \nu$$

$$\frac{1}{\nu} < x < 1 \Rightarrow -\nu < -\nu x < -1 \Rightarrow [-\nu x]_{2-\nu}$$

$$\Rightarrow y = x - \nu$$



$$y = x - \nu [x/\nu]$$

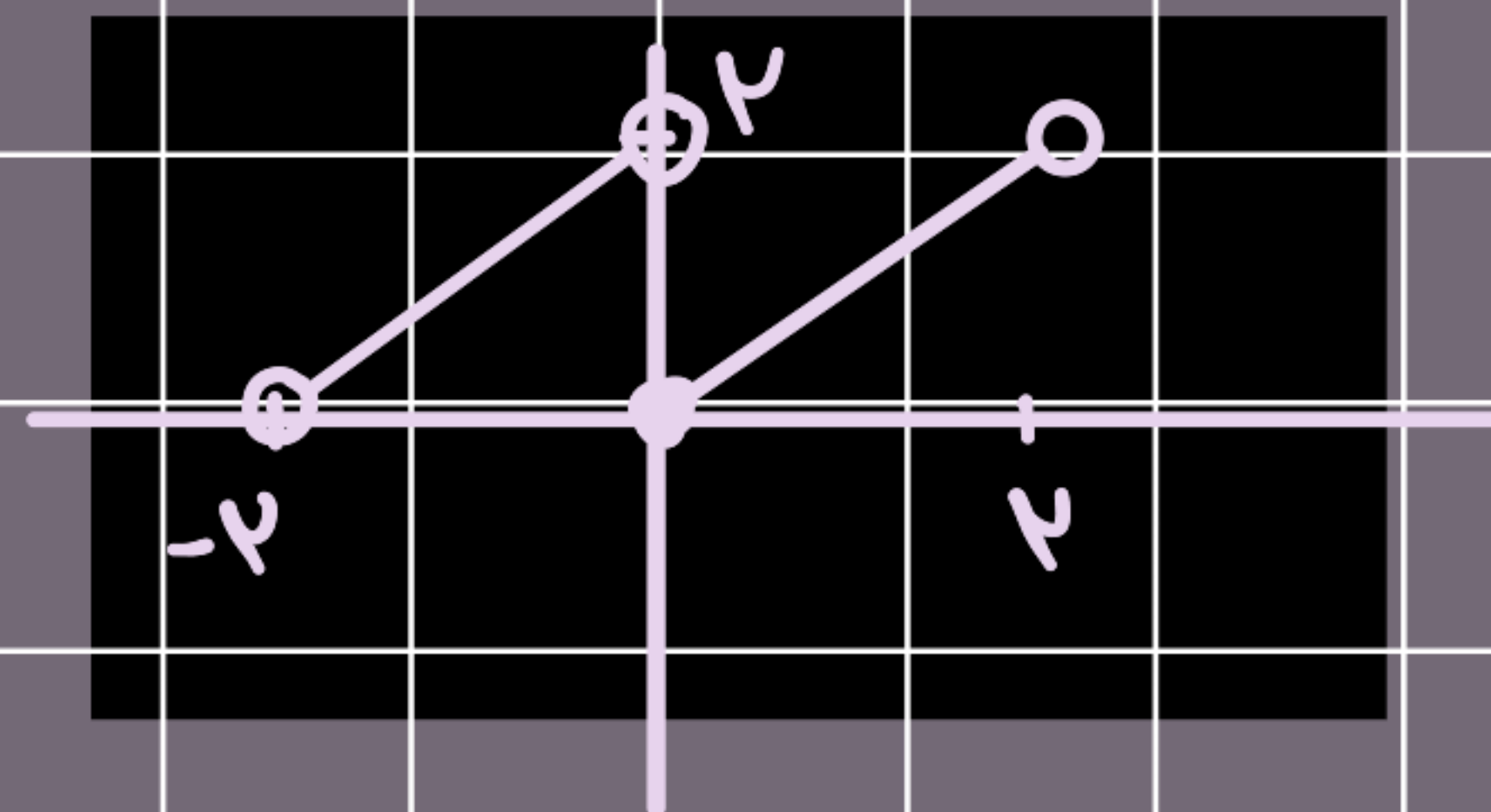
$$x \leftarrow \nu$$

$$-\nu < x < 0 \Rightarrow -1 < x/\nu < 0 \Rightarrow [x/\nu]_{2-1}$$

$$\Rightarrow y = x + \nu$$

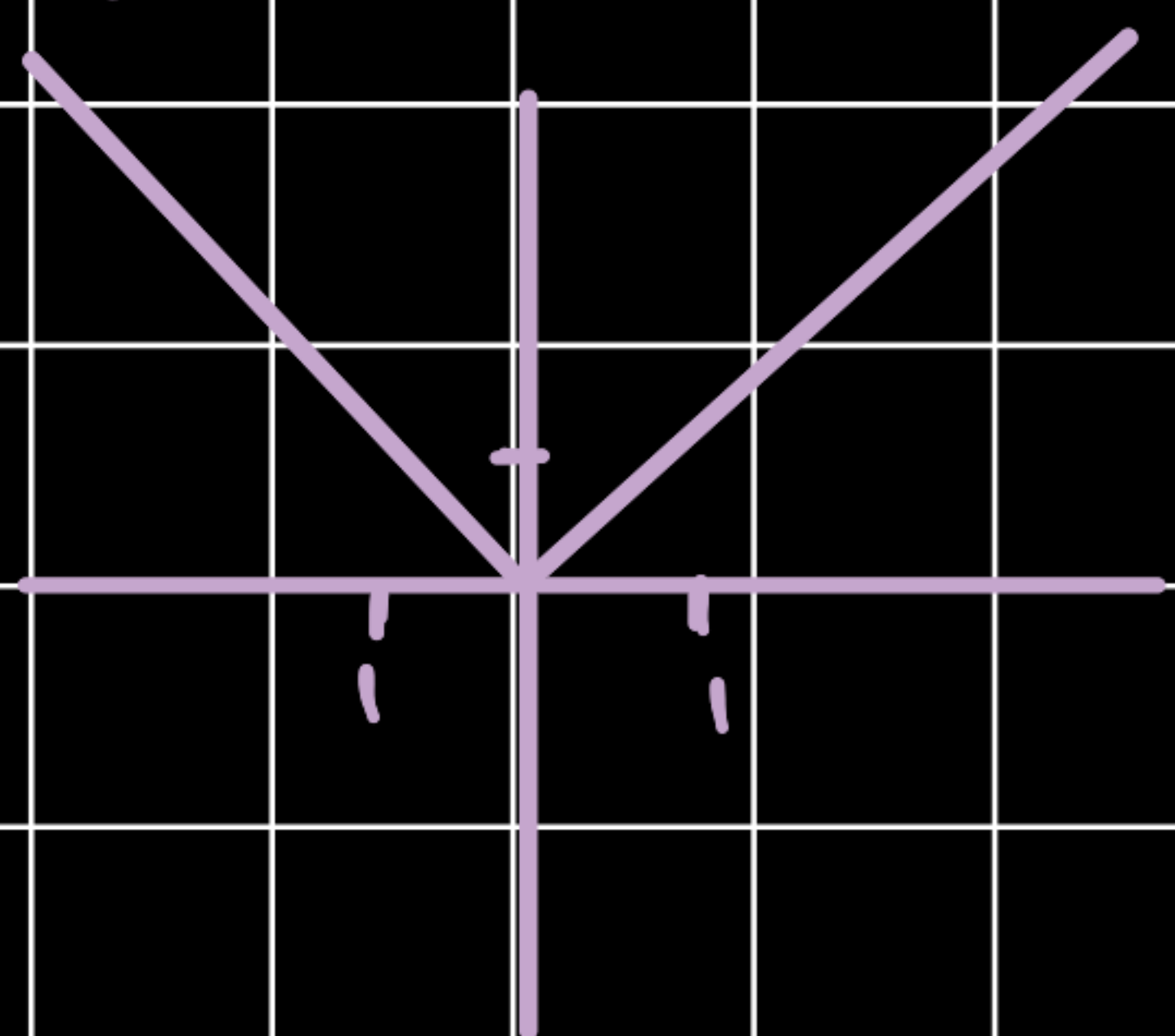
$$0 \leq x < \nu \Rightarrow 0 \leq x/\nu < 1 \Rightarrow [x/\nu]_{2=0}$$

$$\Rightarrow y = x$$

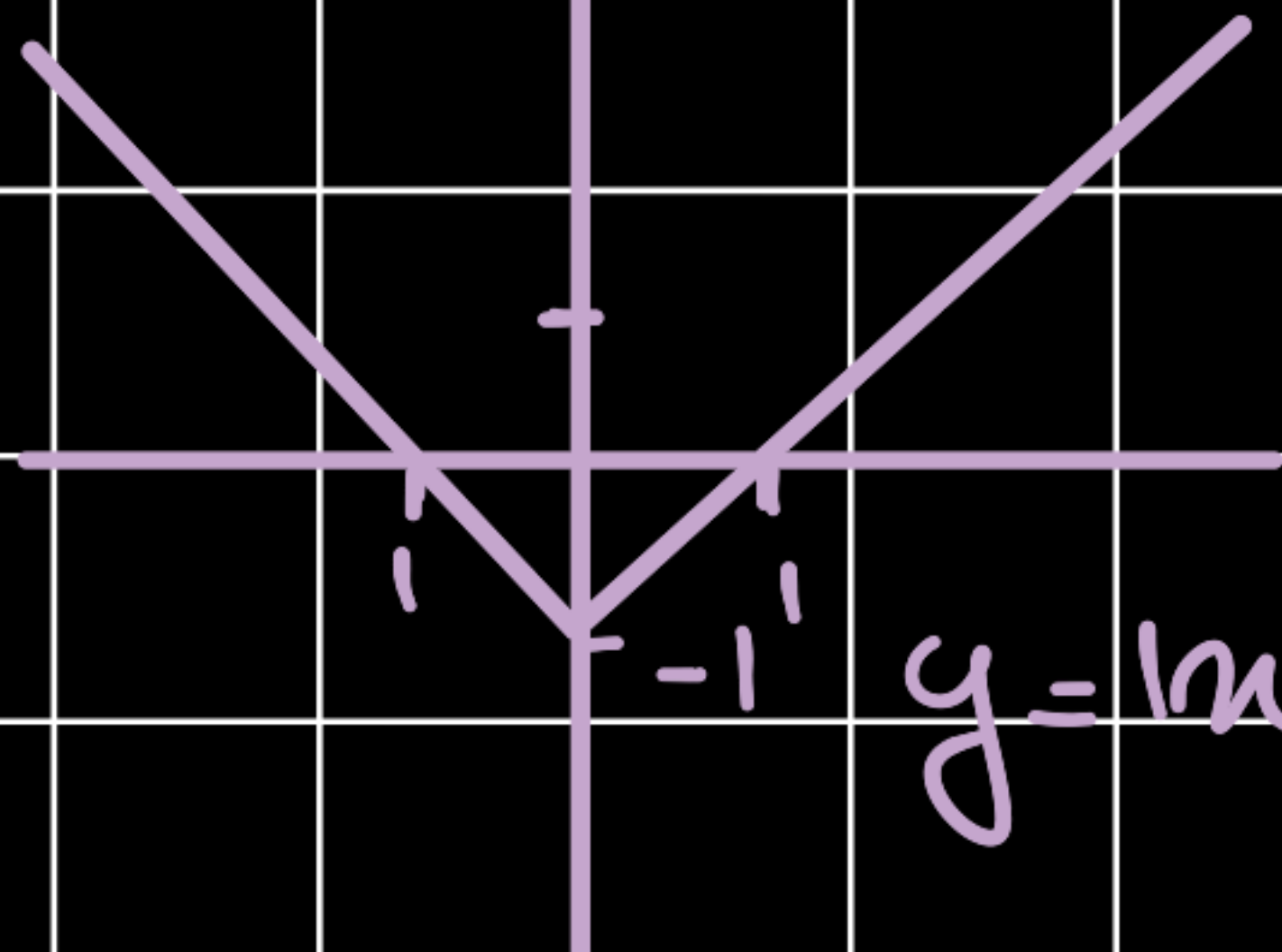


$$g = [|x| - 1]$$

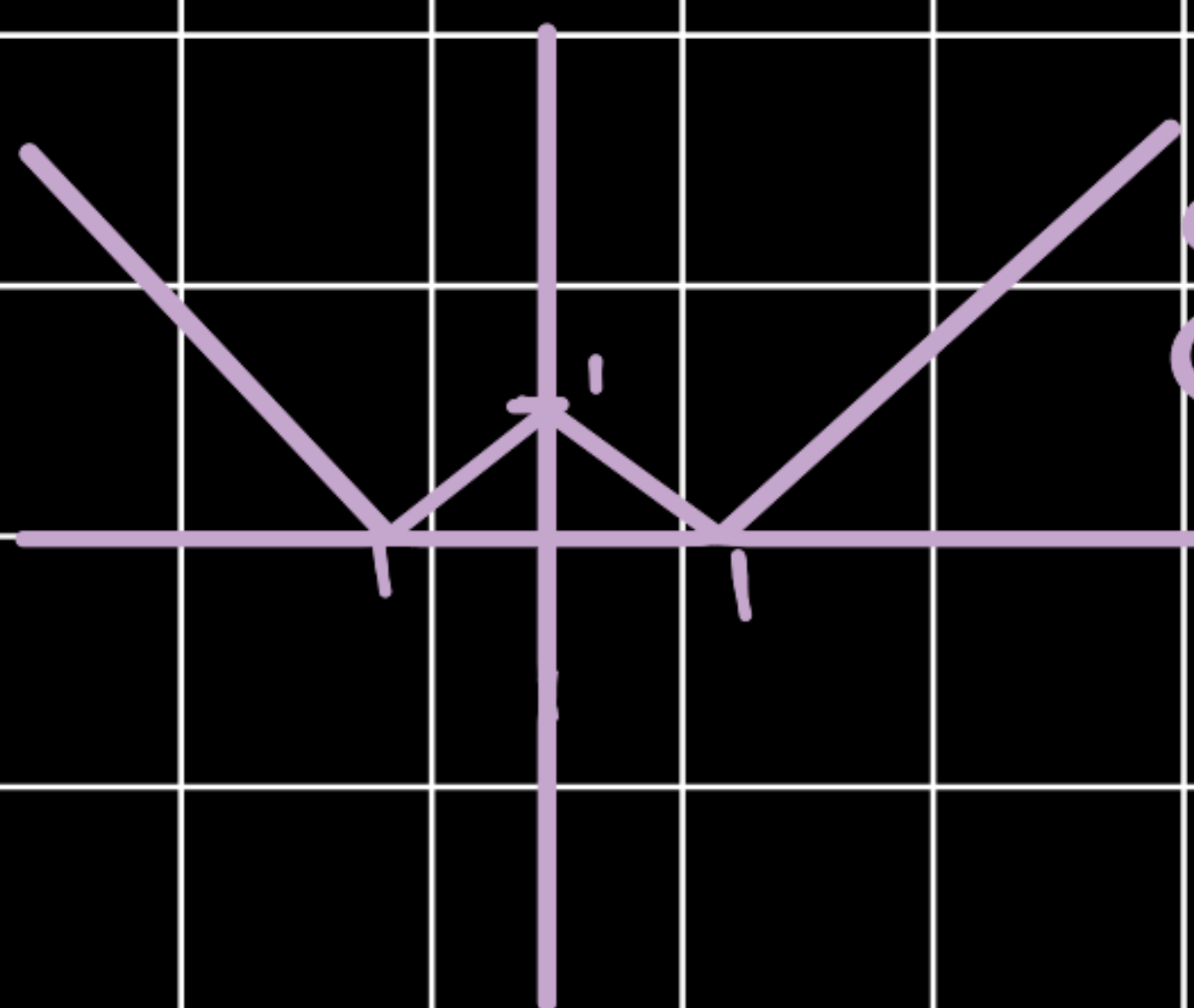
$$-2 \leq g \leq 1$$



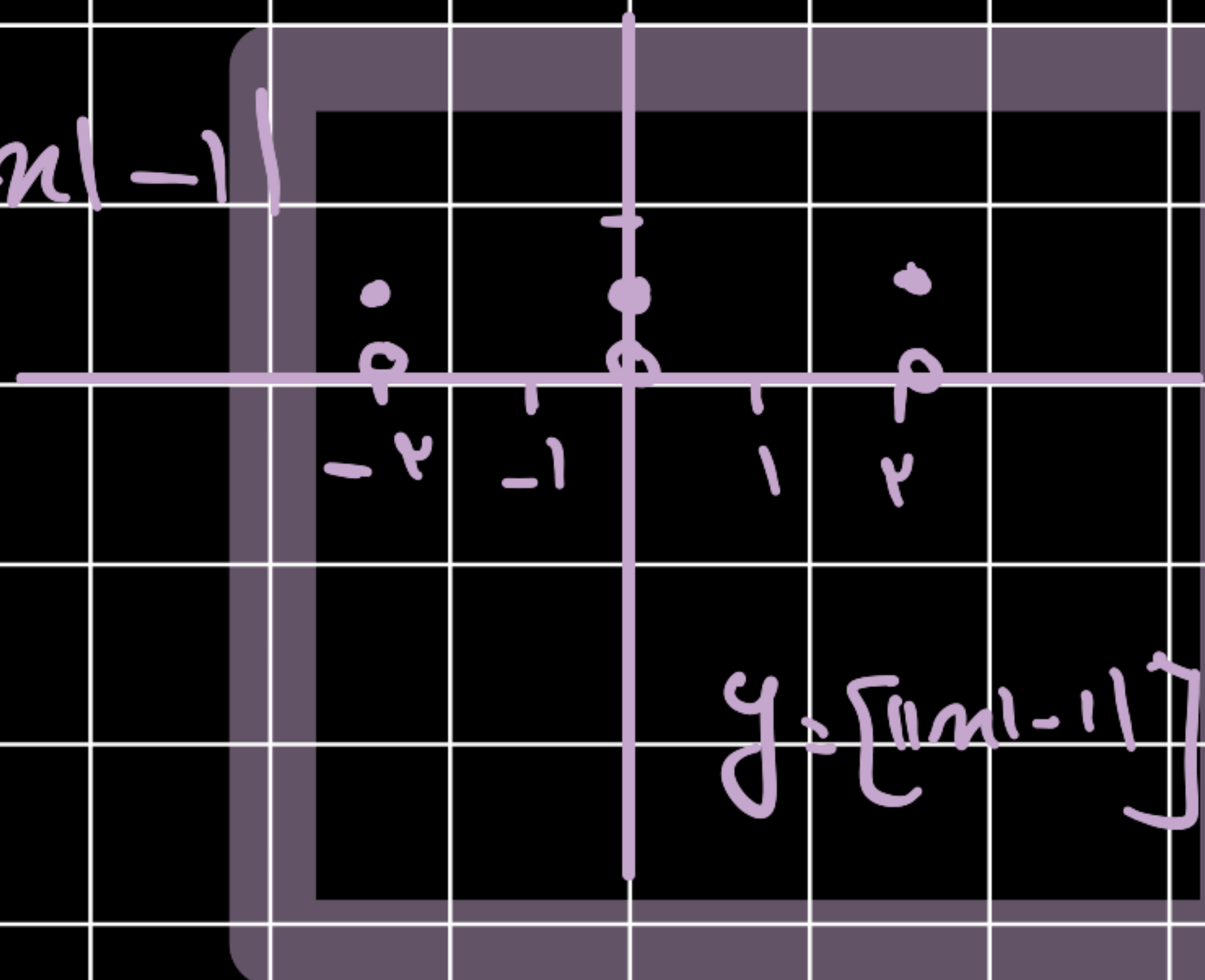
$$g = |x|$$



$$g = |x| - 1$$



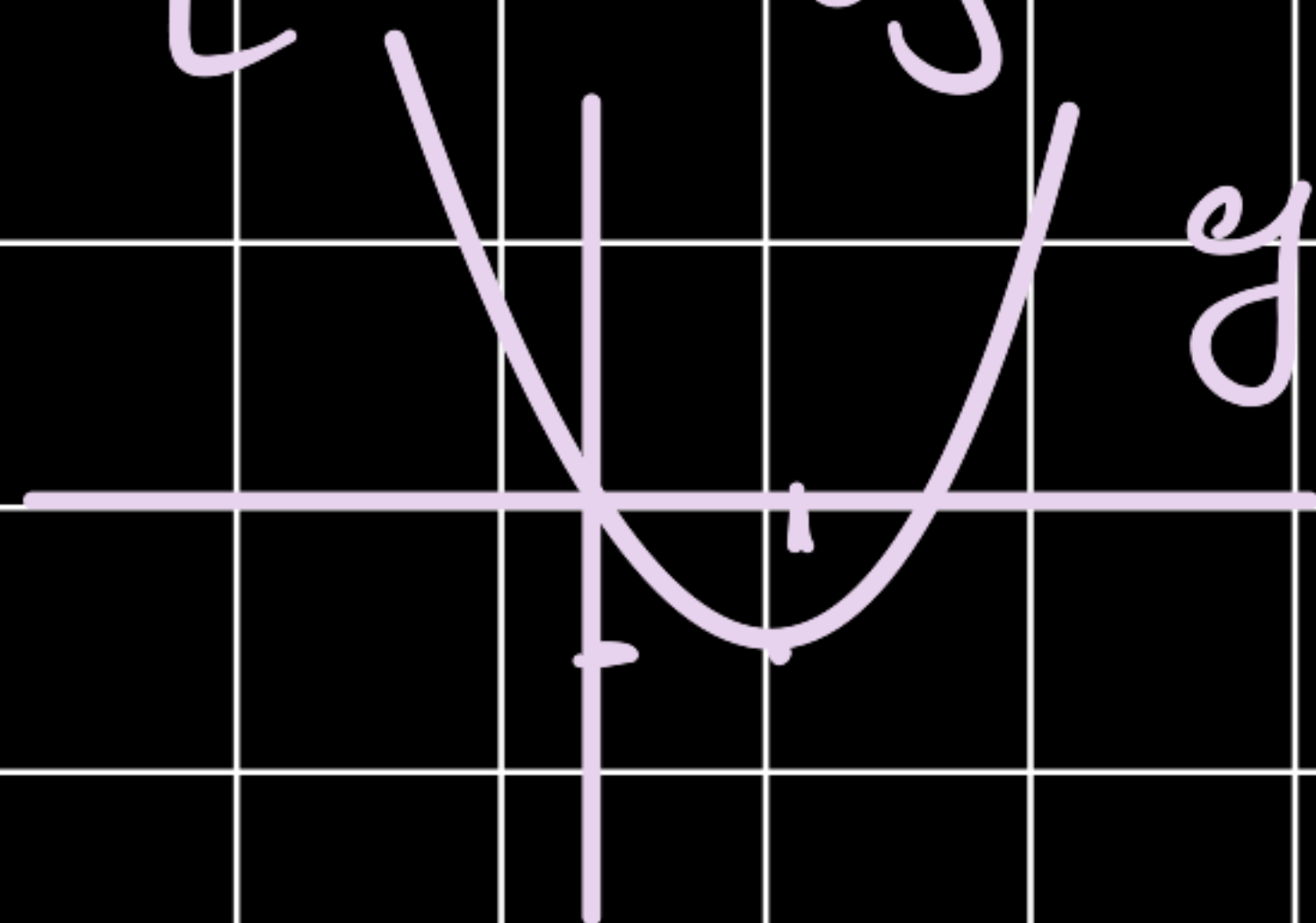
$$g = ||x| - 1|$$



$$g = [|x| - 1]$$

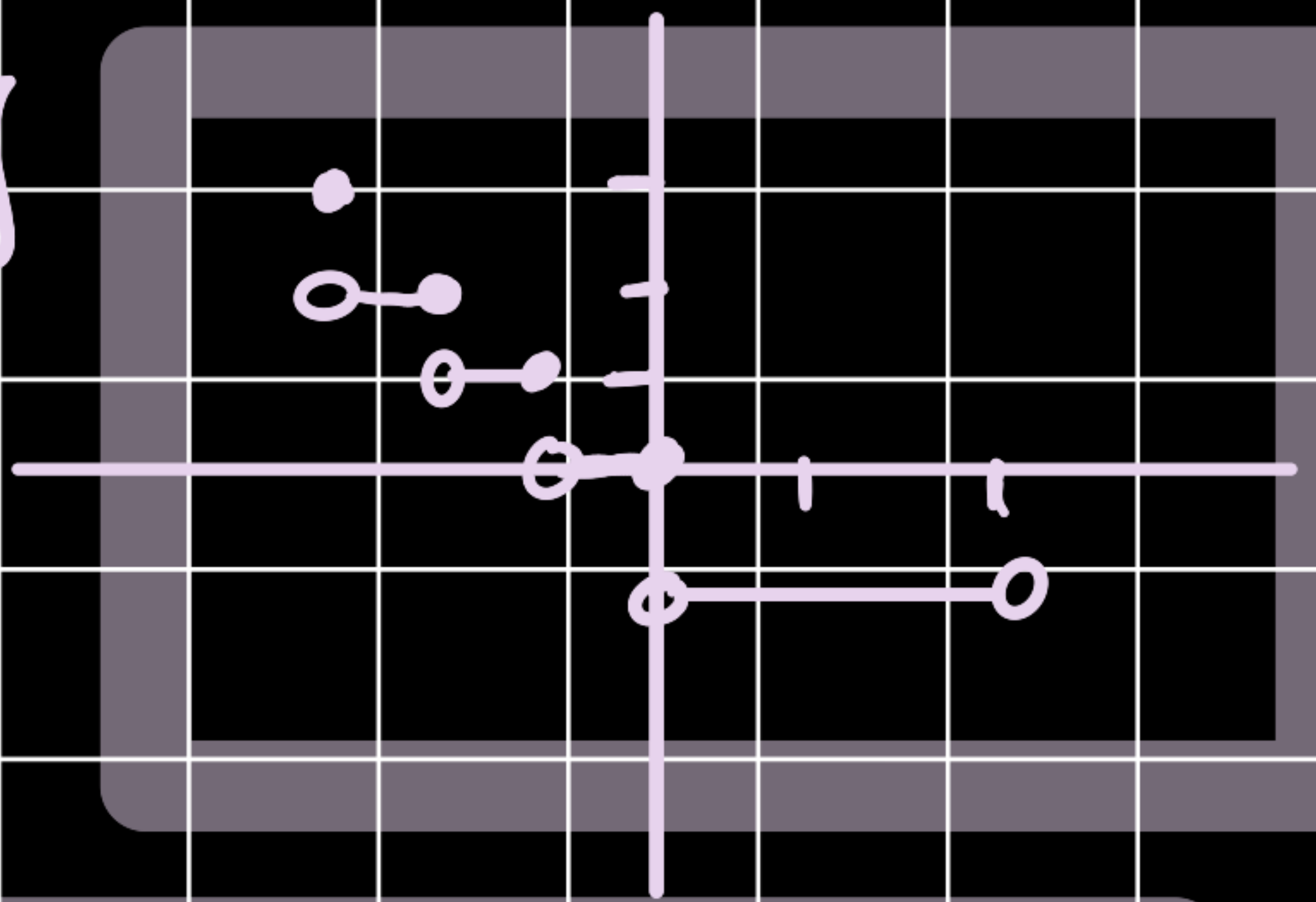
$$g = [x^2 - 2x]$$

$$-1 \leq g \leq 1$$



$$g = x^2 - 2x$$

$$g = [n - \nu n]$$



$$a + [b] = \kappa, \nu$$

← a

$$b - [a] = \nu, \kappa$$

$$[a] = m \Rightarrow a = m + 0, \nu$$

$$[b] = n \Rightarrow b = n + 0, \kappa$$

$$\Rightarrow m + 0, \nu + n = \kappa, \nu \Rightarrow m + n = \kappa$$

$$\Rightarrow n + 0, \kappa - m = \nu, \kappa \Rightarrow \underline{n - m = \nu}$$

$$\nu n = 9 \Rightarrow n = 9$$

$$m = 1$$

$$b = 9, \kappa, a = 1, \nu \Rightarrow a + b = \kappa, 9$$

$$(1+\sqrt{2})^9 + (1-\sqrt{2})^9 = 198$$

$\sqrt{2} > 1 \rightarrow 1-\sqrt{2} < 0$, پہلے صفر $\rightarrow$

$(1-\sqrt{2})^9 < 0 \rightarrow \text{پہلے}$ صفر

$$(1+\sqrt{2})^9 = 198 - \underbrace{(1-\sqrt{2})^9}_{\text{پہلے}} \Rightarrow$$

$$(1+\sqrt{2})^9 = 198 - \dots \Rightarrow$$

$$[(1+\sqrt{2})^9] = 198$$