

1) $y = \frac{n+r}{n^2-r^2} \Rightarrow n^2-r^2=0 \Rightarrow n(n-r)=0 \Rightarrow n=r \text{ or } n=0 \Rightarrow D_f = \mathbb{R} - \{0, r\}$

2) $\frac{n+r}{n^2-r^2} = y \Rightarrow n - \sqrt{n+1}y \Rightarrow \Delta < 0 \Rightarrow D_f = \mathbb{R}$

3) $\frac{n+r}{n^2-r^2} = y \Rightarrow n^2+n+r \Rightarrow \Delta < 0 \Rightarrow D_f = \mathbb{R}$

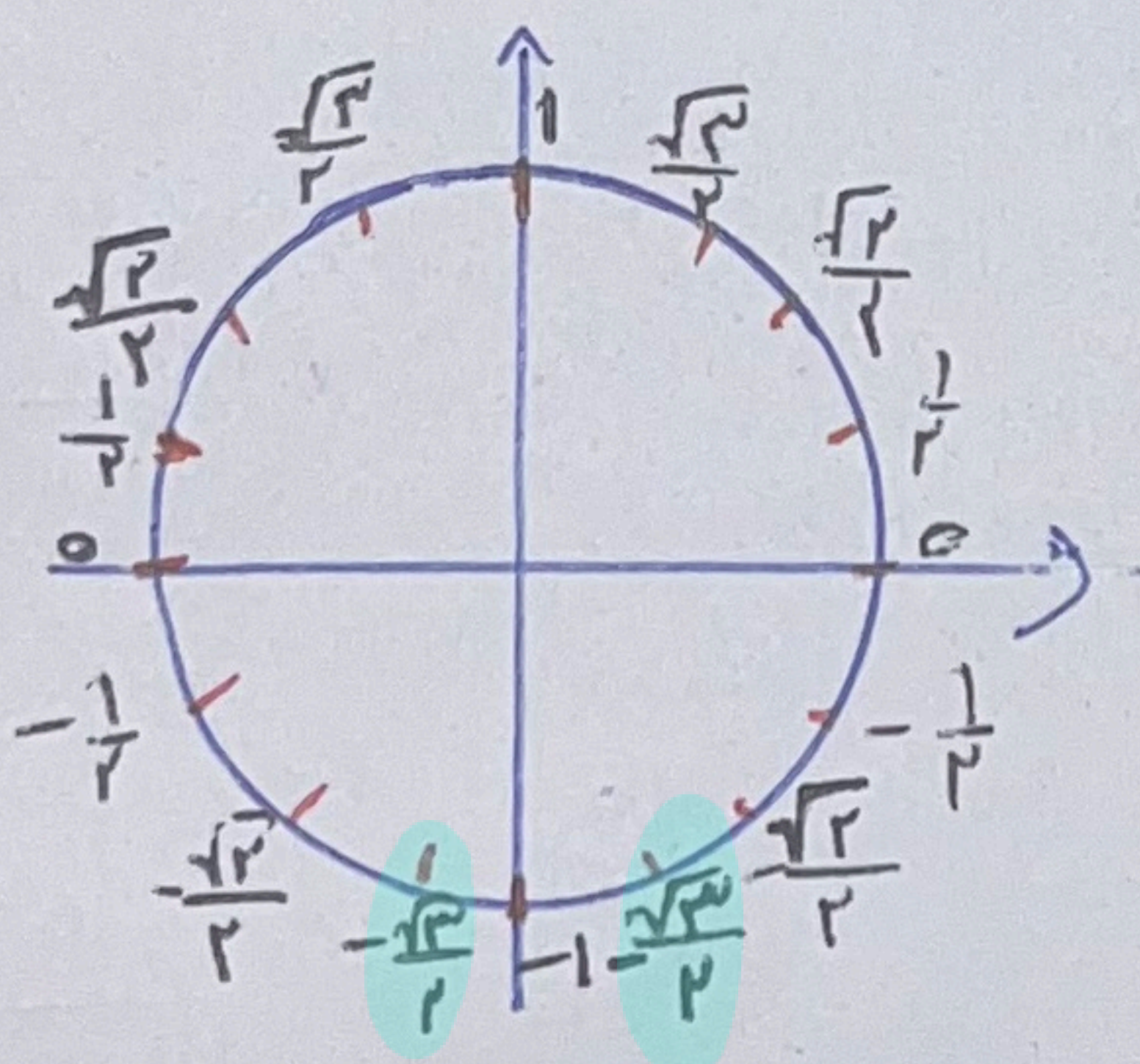
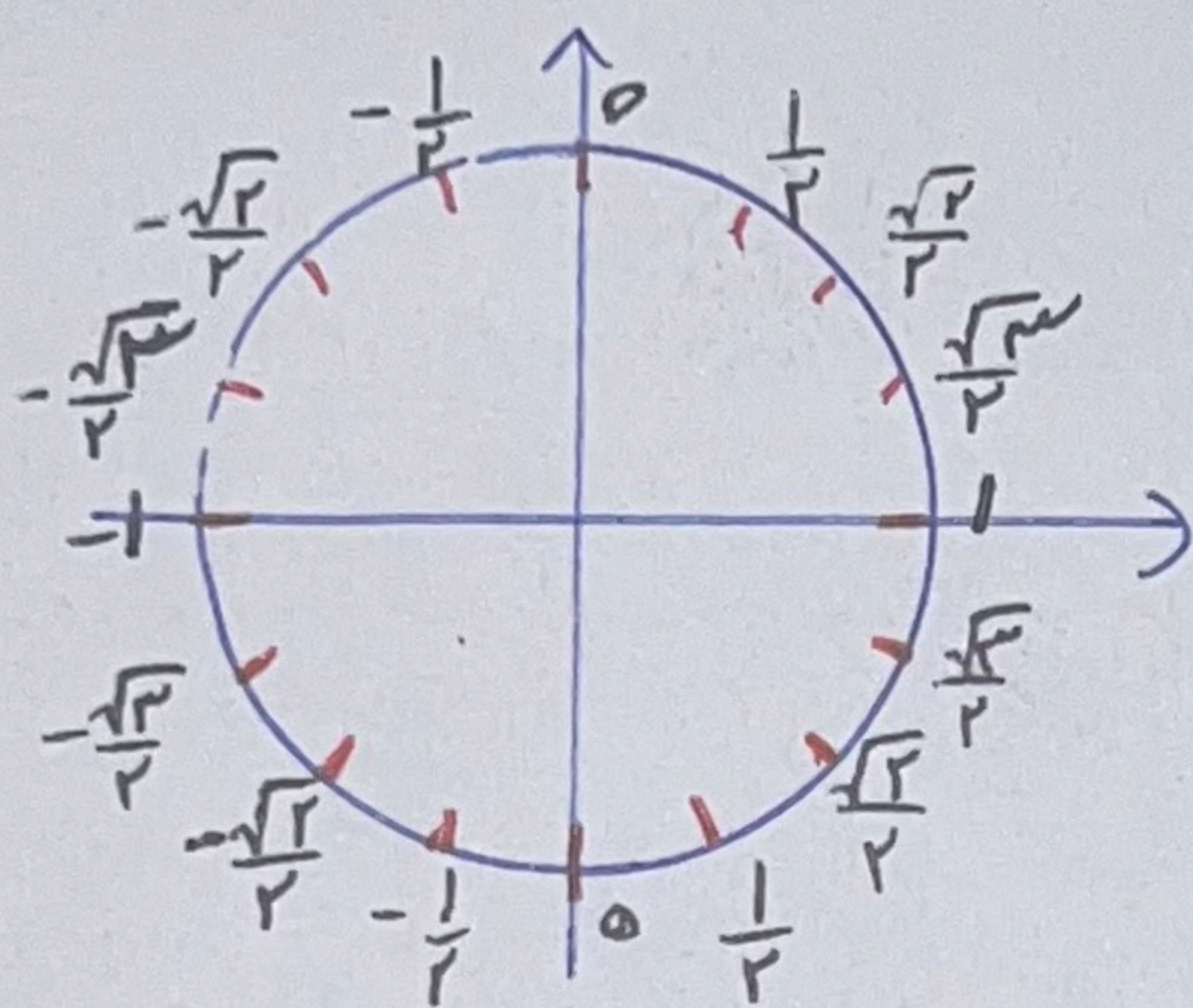
4) $\frac{n+r}{n^2-r^2} = y \Rightarrow n^2-r^2=0 \Rightarrow n(n-r)=0 \Rightarrow n=r \text{ or } n=0 \Rightarrow D_f = \mathbb{R} - \{0, r\}$

5) $\sqrt{y-n} + \sqrt{n-r} = y \Rightarrow y-n \geq 0 \Rightarrow n \leq y \Rightarrow n-r \geq 0 \Rightarrow n \geq r \Rightarrow D_f = [r, y]$

6) $\frac{r(n+1)}{n^2+1} = y \Rightarrow n^2+1 \neq 0 \Rightarrow n^2=1 \Rightarrow n=1 \text{ or } n=-1 \Rightarrow D_f = \mathbb{R} - \{1\} \Rightarrow D_f = \mathbb{R}$

7) $\frac{\sqrt{n-r}}{n-r} = y \Rightarrow n-r \geq 0 \Rightarrow n \geq r \Rightarrow n-r=0 \Rightarrow n=r \Rightarrow D_f = [r, +\infty) - \{r\}$

8) $\frac{r(n+r)}{|n|+n} = y \Rightarrow |n|+n \neq 0 \Rightarrow n \neq -|n| \Rightarrow D_f = \mathbb{R} - \{0\}$



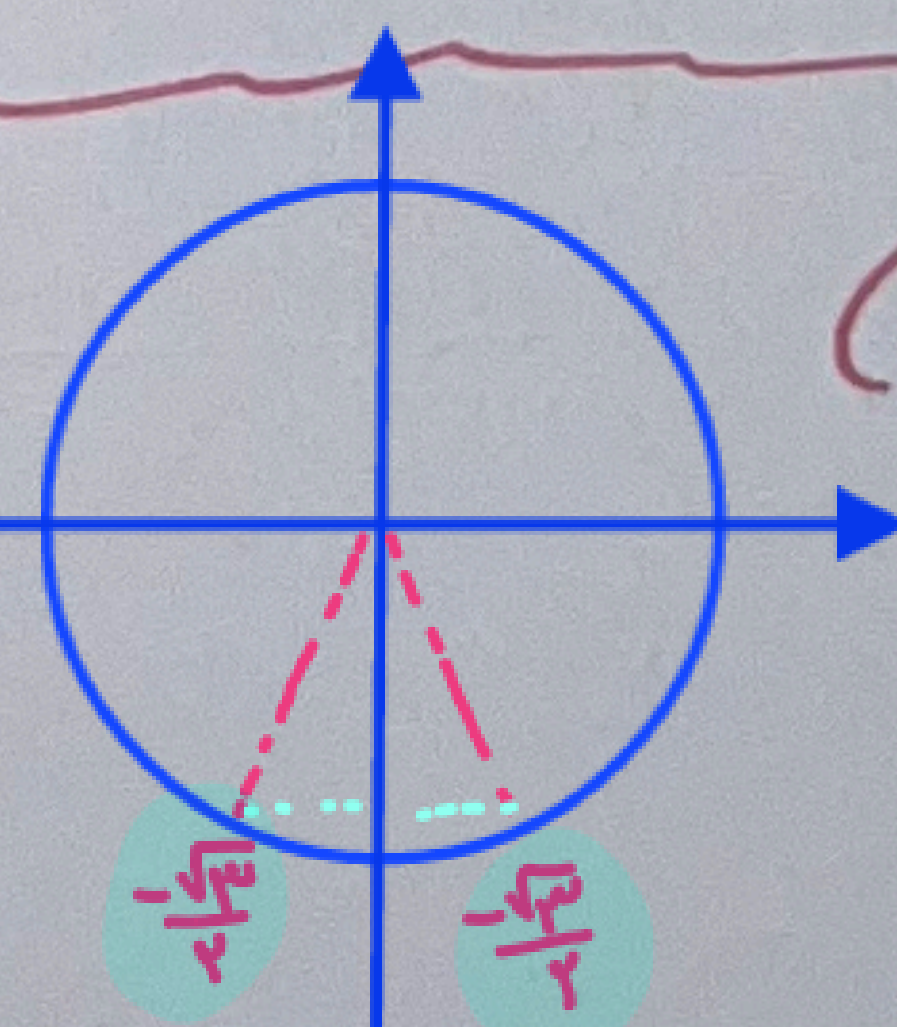
$\cos \frac{r\pi}{y} = -\frac{1}{r} \Rightarrow \frac{1}{r}$

$\sin \frac{\pi}{y}, \sin \frac{5\pi}{y}$

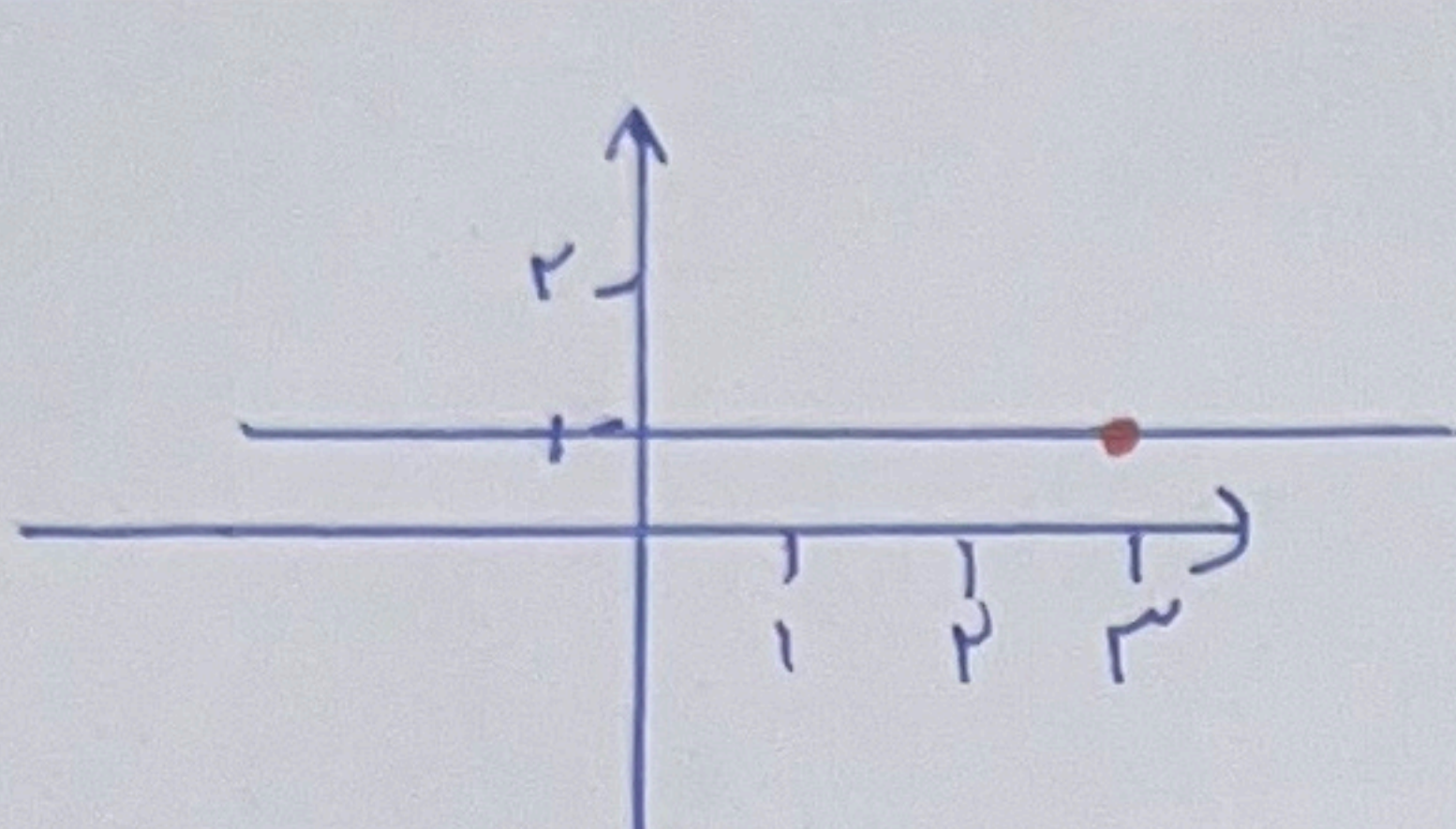
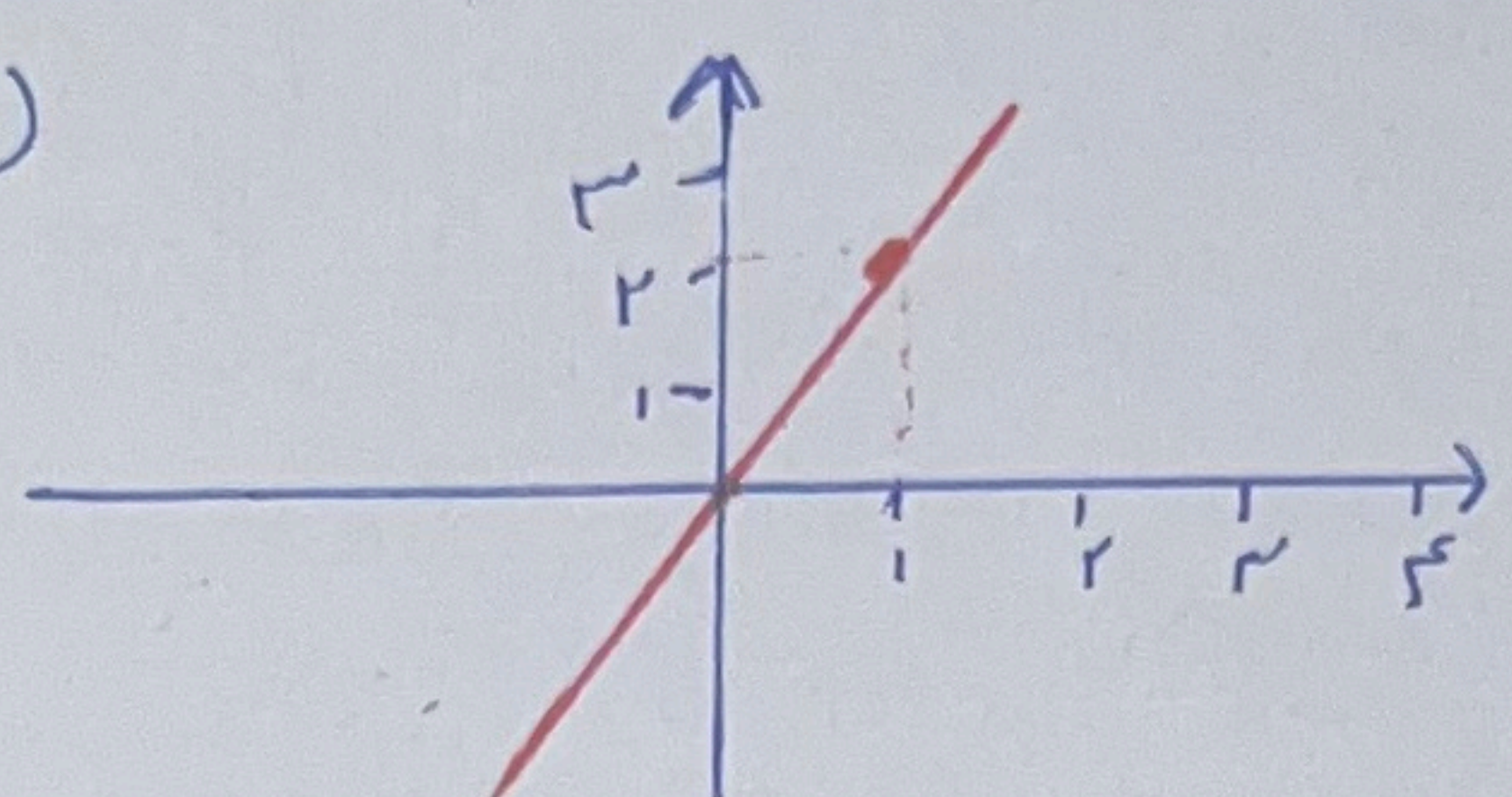
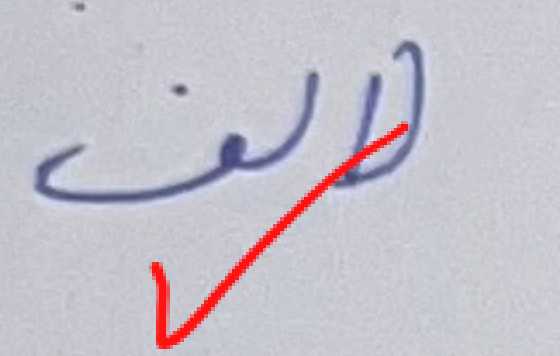
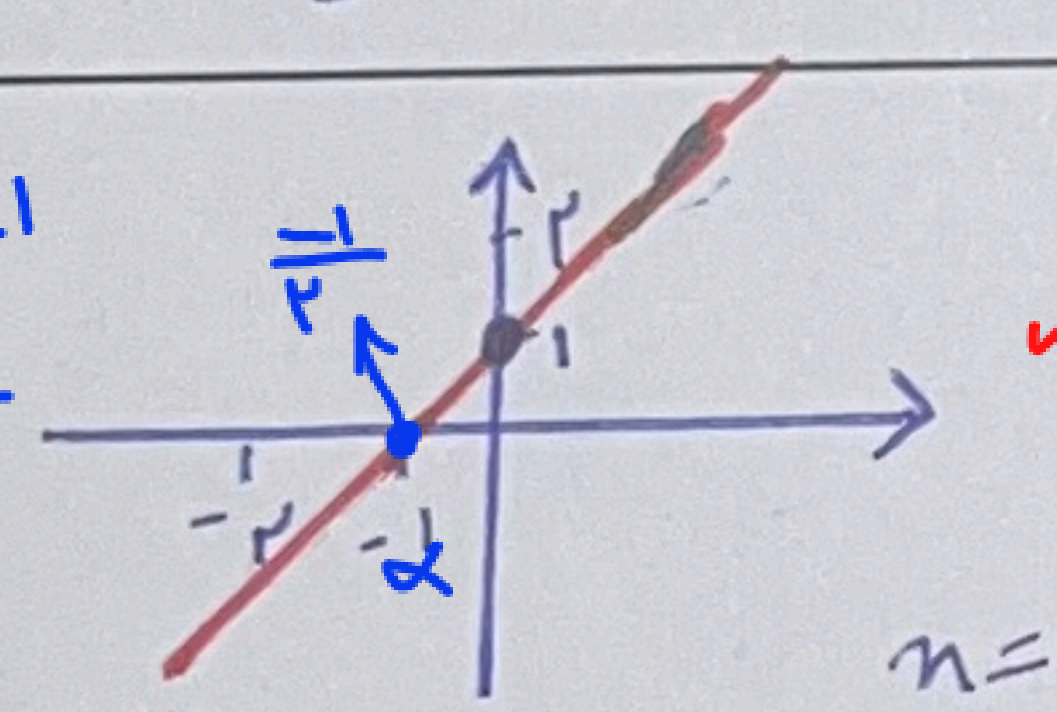
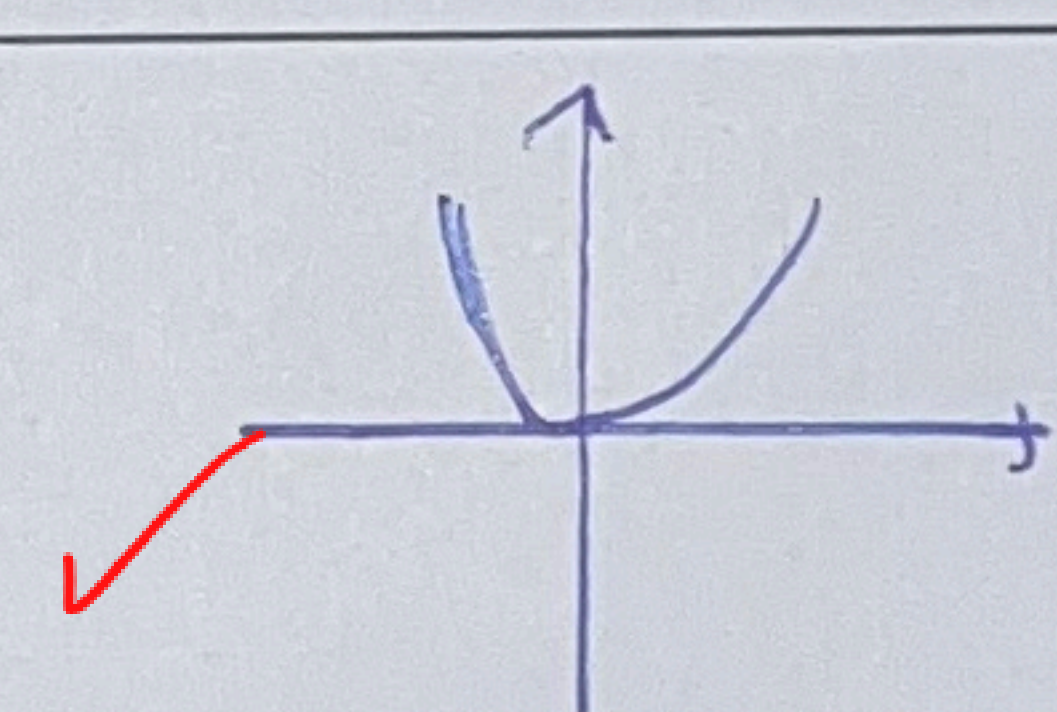
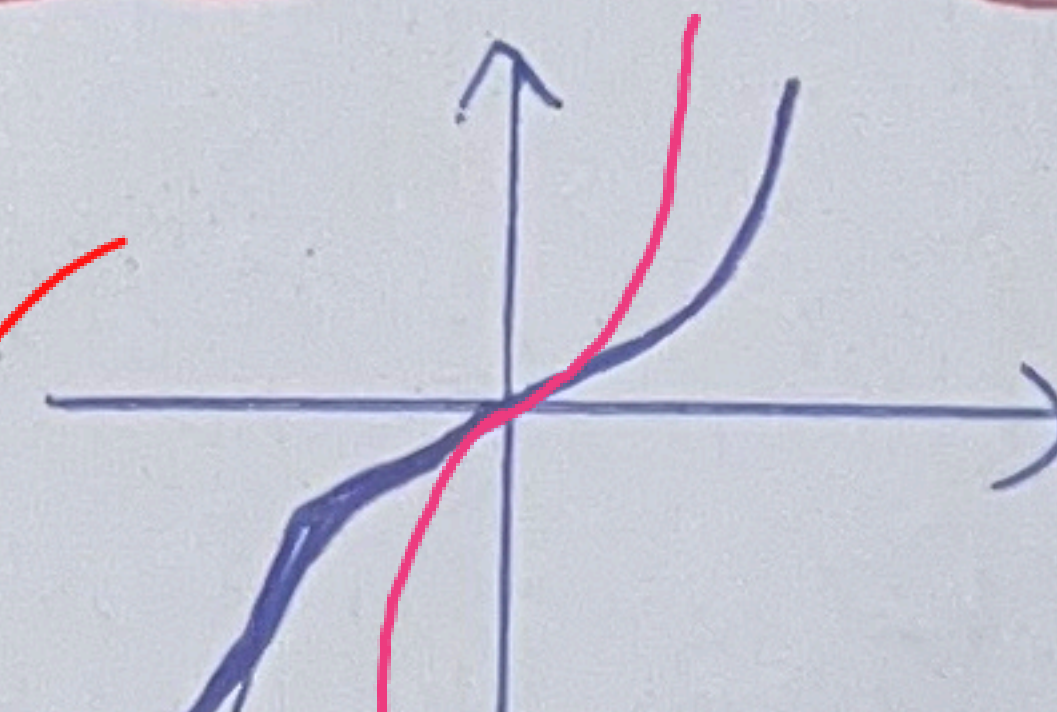
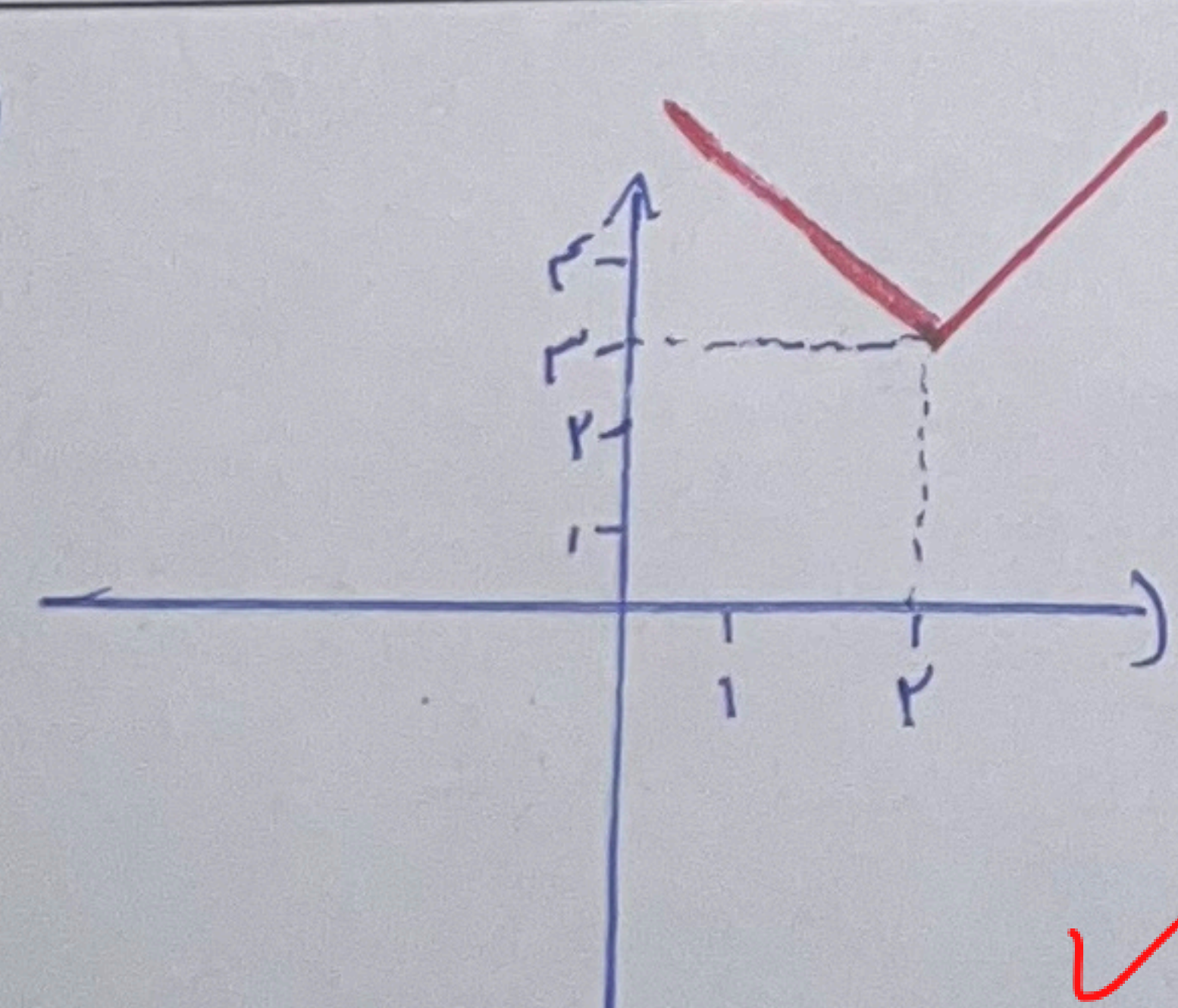
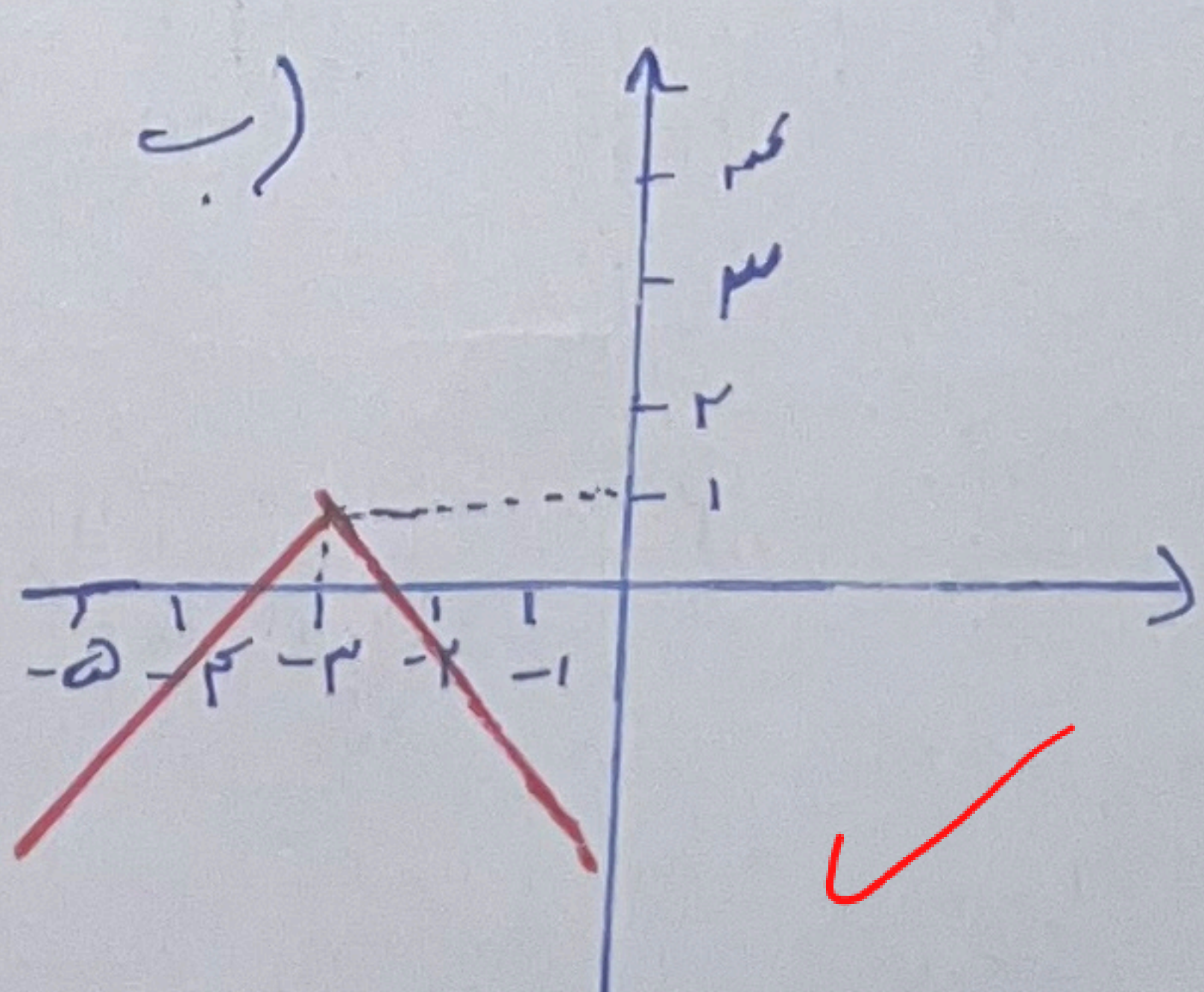
$\cos \frac{11\pi}{y} = \frac{\sqrt{3}}{r} \Rightarrow \frac{\sqrt{3}}{r}$

$\sin \frac{V\pi}{y}$

$\sin \frac{11\pi}{y}$



سینوس زاده های $\frac{r\pi}{y}$ و $\frac{5\pi}{y}$

۱۷۱۷۵	پاسخ صحیح تابع است	$y^3 - n = 2n^2 \xrightarrow{n=1} y^3 - 1 = 2 \quad y^3 = 3 \quad y = \sqrt[3]{3}$	مثال نقض
۱	تابع نیست	$-n^3 + n^2 \neq n + 3 \xrightarrow{n=0} 0 + 0 = 0 + 3 \Rightarrow n = 3 \quad y = 3 \text{ یا } y = -3$	مثال نقض
۱	تابع نیست	$\sqrt{3} + y-1 = 0 \xrightarrow{n=1} \sqrt{3} + y-1 \neq 0 \Rightarrow y-1 = -\sqrt{3} \quad y=0 \text{ یا } y=2$	مثال نقض
۱	تابع نیست	$n = \cos y \xrightarrow{n=0} \cos y = 0 \quad y = 90 \text{ یا } y = 270$	مثال نقض
۲	$f(n) = 2n$	$y = an + b \quad r = (2 \times 1) + b \Rightarrow b = 0$	الف) 
۲			ب) 
۲		$f(n) = n \quad y = n \quad a = 1 \quad b = 0 \quad a + rb \Rightarrow 1 + 0 = 1$	الف) 
۳		$n = -\frac{b}{ra} \Rightarrow -\frac{a}{r} = n \quad r = -\frac{a}{r} \quad \boxed{a = -4} \quad y = n^2 + an + b$ $a + rb \Rightarrow -4 + 10 = 6 \quad \boxed{b = 6}$ $1 = 4 + (-4)(r) + b$ $1 = -4 + b \quad \boxed{b = 5}$	الف) 
۱۷۱۷۵		$y = n^2$	ج) 
۴		$y = n^3$	د) 
۲			الف) 
۵			ب) 

سوال ۱

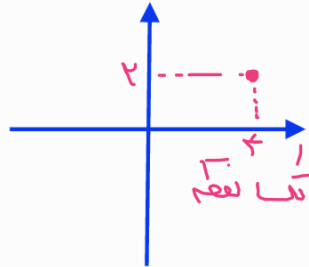
برای اثبات تابع بودن می‌توانیم مثال نقض بزنیم!

الف) $y^3 - x = 2x^2$

تعریف ریاضی $\rightarrow \begin{cases} y_1^3 = 2x_1^2 + x_1 \\ y_2^3 = 2x_2^2 + x_2 \end{cases} \xrightarrow{x_1=x_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ تابع است!

ب) $\sqrt{x-4} + |y-2| = 0$

$\underbrace{\quad}_{x=4} + \underbrace{\quad}_{y=2} = 0$



تابع است!

همچو عدد ناشی برابر صفر بود: