

تابع است. $\begin{cases} y_1^2 = 2n_1^2 - 1 \\ y_2^2 = 2n_2^2 - 1 \end{cases} \xrightarrow{n_1=n_2} y_1^2 = y_2^2 \Rightarrow y_1 = y_2$ (الف)

تابع است. $\begin{cases} y_1^2 + y_2^2 = 2n_1^2 - 1 \\ y_1^2 + y_2^2 = 2n_2^2 - 1 \end{cases} \xrightarrow{n_1=n_2} y_1^2 + y_2^2 = y_1^2 + y_2^2 \Rightarrow y_1^2 + y_2^2 - y_1^2 - y_2^2 = 0$ (ب)

فرض کنیم $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2) = 0 \Rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0 \Rightarrow \boxed{y_1 = y_2} \checkmark$ α

تابع است $\begin{cases} y_1 = n_1^2 - 1 \\ y_2 = n_2^2 - 1 \end{cases} \xrightarrow{n_1=n_2} y_1 = y_2$ (الف) تعریف ریاضی

تابع نیست $y = 1$ و $y = -1$ $|y| + 0 = 1$ $|y| = 1$ $n = 0$ $|y| + n = n + 1$ (ب) مثال نقض

تابع است $y = -1$ $y^2 + 0 = 0 - 1$ $y^2 = -1$ $n = 0$ $y^2 + n = n - 1$ (ج) مثال نقض

تابع است $y = 1$ $\sqrt[3]{y} + 0 = 2$ $\sqrt[3]{y} = 2$ $n = 0$ $\sqrt[3]{y} + n = 2$ (د) مثال نقض

(الف) $\frac{\sin(\frac{\pi}{3})}{\cos(\frac{\pi}{3})} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

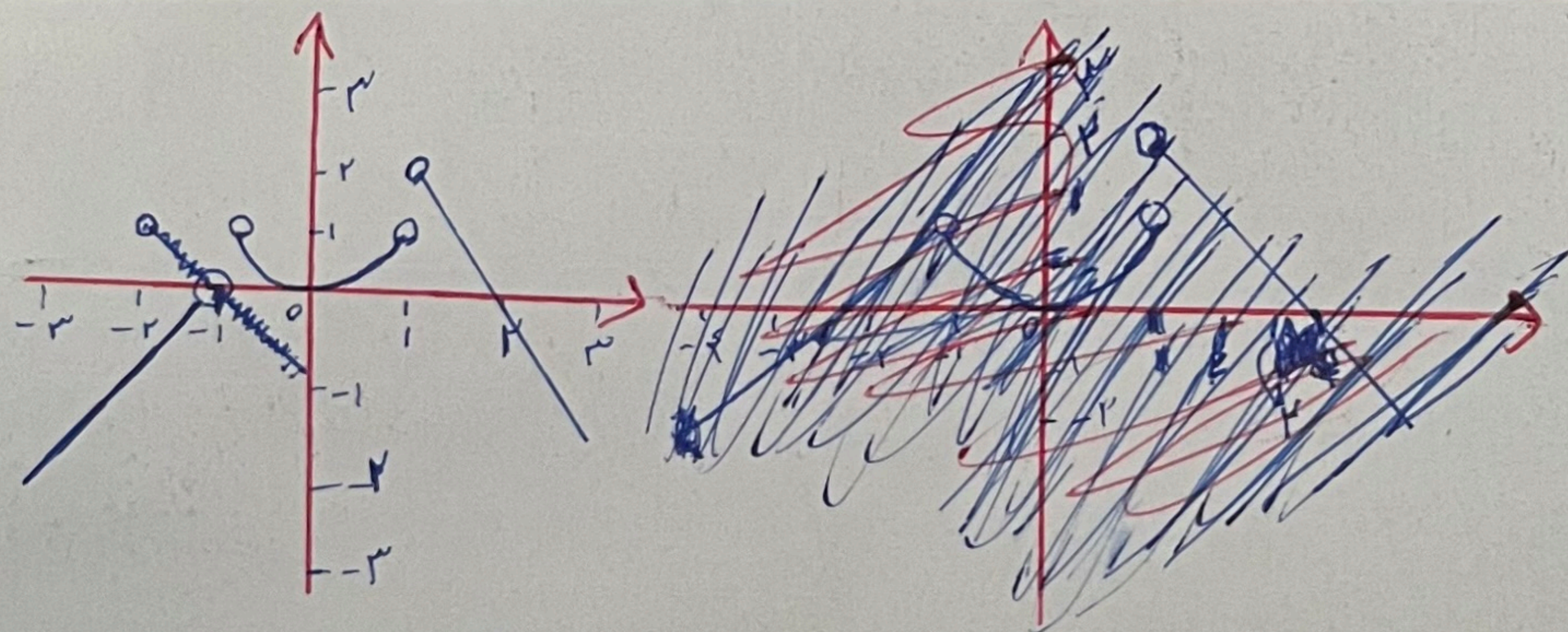
(ب) $\frac{\cos(\frac{\sqrt{3}\pi}{2})}{\sin(\frac{\sqrt{3}\pi}{2})} = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \frac{\sqrt{3}}{1} = \sqrt{3}$

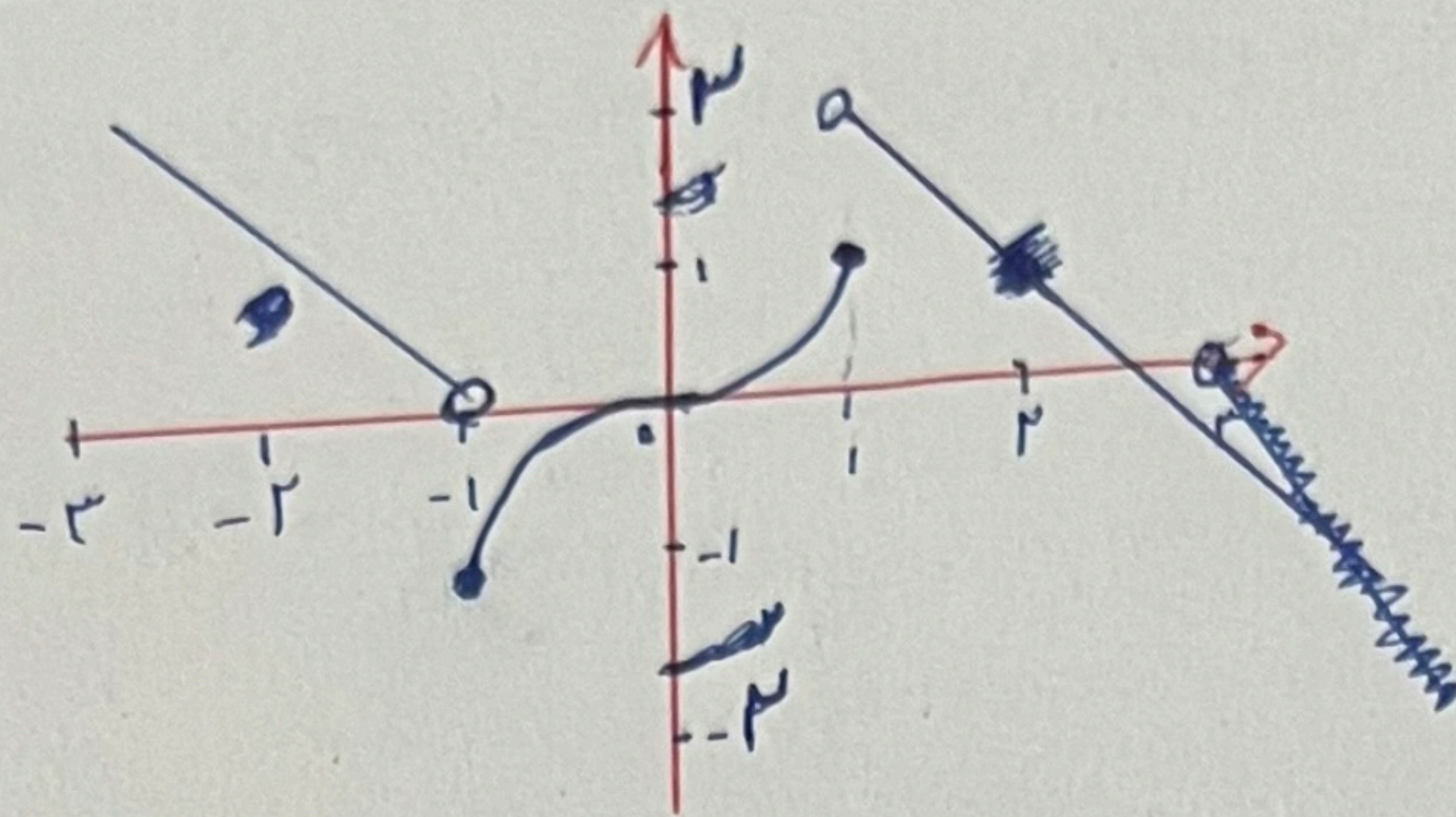
(ج) $\frac{\sin(225^\circ)}{\cos(225^\circ)} = \frac{-\frac{1}{\sqrt{2}}}{\frac{\sqrt{2}}{2}} = -\frac{1}{\sqrt{2}}$

(د) $\frac{\cos(180^\circ)}{\sin(180^\circ)} = \frac{-1}{0} = \text{تعریف نشده}$

(الف) $\sin \alpha = \frac{1}{2} \Rightarrow \alpha = \frac{\pi}{6}$ و $\frac{5\pi}{6}$

(ب) $\cos \alpha = \frac{\sqrt{2}}{2} \Rightarrow \alpha = \frac{\pi}{4}$ و $\frac{7\pi}{4}$





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الف) $y = (n-2)(n-3)(n-4)$

n	2	3	4
	$-$	$+$	$+$

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ب) $y = (n+2)(n-3)^2(n-4)$ ~~$(n-2)(n-3)(n-4)$~~

n	2	3	4
	$+$	$-$	$+$

الف) $y = \frac{(n-2)(n-3)}{n-4}$

n	2	3	4
	$-$	$+$	$+$

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ب) $y = \frac{(n-2)(n-4)}{(n-3)^2}$

n	2	3	4
	$+$	$-$	$+$

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الف) $\frac{n^2 - 2n + 2}{n-3} = y \Rightarrow \frac{(n-1)^2(n+2)}{n-3}$

~~$\frac{n^2 - 2n + 2}{n-3} = y \Rightarrow \frac{(n-1)^2(n+2)}{n-3}$~~

n	-2	1	2
	$+$	$-$	$+$

$\frac{n^2 - 2n + 2}{n^2 - n - 6} = \frac{n-1}{n+2}$

$\frac{n^2 - 2n + 2}{n^2 - n - 6} = \frac{n-1}{n+2}$

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

$(n-1)(n+2)$

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ب) $\frac{n^2 - 2n + 2}{n^2 - 2n + 2} = y \Rightarrow y = \frac{(n-1)(n-2)}{(n-2)(n-1)}$

n	1	2	2
	$+$	$+$	$-$

الف) $y = \frac{n^2 - n^2}{n^2 + n + 2} \Rightarrow \frac{n^2(n^2 - 1)}{n^2 + n + 2} \Rightarrow (n-1)(n+1)$

n	-1	0	1
	$+$	$+$	$-$

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ب) $y = \frac{n^2 + 2n + 2}{n^2 + 2n + 2} \Rightarrow \Delta < 0$

$n^2 + 2n + 2 \Rightarrow \Delta < 0$

نوار