

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۴ کلاس:
 ۵۰

الف) $\begin{cases} y_1^3 = 2x_1^2 - 1 \\ y_2^3 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1=x_2} y_1^3 = y_2^3 \rightarrow y_1 = y_2$

تابع هست

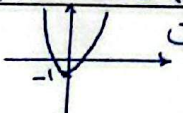
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ب) $\begin{cases} y_1^3 + y_1 = 2x_1^2 - 1 \\ y_2^3 + y_2 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1=x_2} y_1^3 + y_1 = y_2^3 + y_2 \rightarrow y_1^3 - y_2^3 + y_1 - y_2 = 0$

۱) صحت $y_1 = y_2$

۲) $y_1^2 + y_2^2 + y_1 y_2 = 0 \rightarrow 0 < x \rightarrow y_1 = y_2 \checkmark$ تابع هست

رسم شکل (الف)



تابع هست

مثال نقض: $x=0 \rightarrow |y|=1 \rightarrow y=1$
 $y=-1$

تابع نیست

۲

ج) $\begin{cases} y_1^3 = -x_1^3 + 2x_1 - 1 \\ y_2^3 = -x_2^3 + 2x_2 - 1 \end{cases} \xrightarrow{x_1=x_2} y_1^3 = y_2^3 \rightarrow y_1 = y_2$

تابع هست

۲) $\begin{cases} \sqrt[3]{y_1} = -\sqrt[3]{x_1} + 2 \\ \sqrt[3]{y_2} = -\sqrt[3]{x_2} + 2 \end{cases} \xrightarrow{x_1=x_2} \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$ تابع هست

الف) $\tan \frac{\pi}{3} = \frac{\sin \pi/3}{\cos \pi/3} = \frac{\sqrt{3}}{1} \times \frac{1}{1} = \sqrt{3} \checkmark$ ب) $\cot \frac{\pi}{4} = \frac{\cos \pi/4}{\sin \pi/4} = \frac{\sqrt{2}}{\sqrt{2}} \times \frac{1}{1} = 1 \checkmark$

۲

ج) $\tan \frac{11\pi}{4} = \frac{\sin 11\pi/4}{\cos 11\pi/4} = \frac{-1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = -\frac{1}{2} \checkmark$

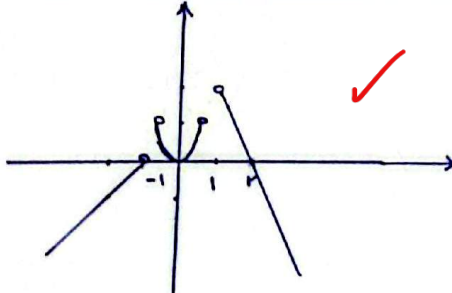
د) $\cot \pi = \frac{\cos \pi}{\sin \pi} = \frac{-1}{0}$ قریب نشده $\checkmark$

الف) $\alpha = \frac{\pi}{4}, \frac{5\pi}{4} \checkmark$

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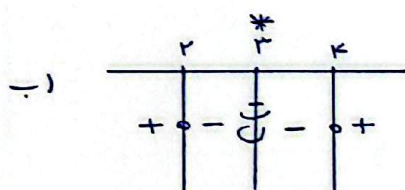
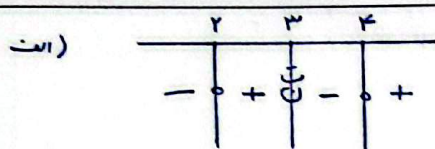
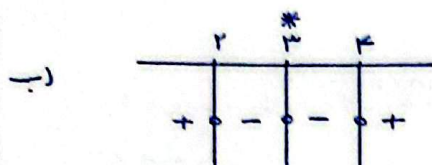
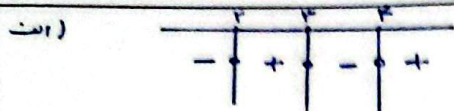
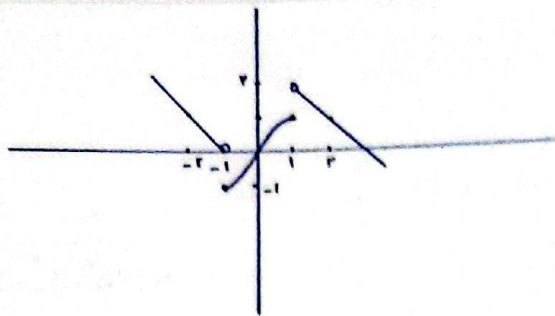
ب) $\alpha = \frac{\pi}{4}, \frac{5\pi}{4} \checkmark$

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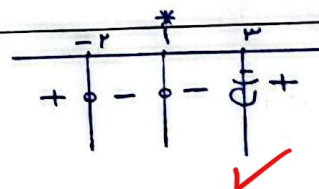


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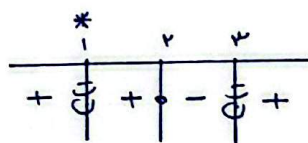
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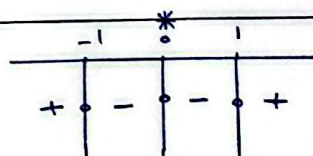
$$\begin{array}{l} \text{ii) } x^r - rx + r \mid x-1 \\ \underline{-x^r + x} \\ x^r + x - r \\ \underline{-(x^r + x - r)} \\ 0 \end{array} \quad \begin{array}{l} x^r - rx + r = (x-1)^r (x+r) \\ (x+r)(x-1) \end{array}$$



$$\therefore y = \frac{(x-1)(x-2)}{(x-1)(x-3)}$$



$$-x = y = \frac{x^r(x-1)(x+1)}{x^r + x + 1} \rightarrow \Delta < 0$$



—) $\Delta = 9 - 14 < 0$

$$\Delta = F_{-12} < 0$$

if $x \in \mathbb{R} \rightarrow y > 0$

عبارت همواره مثبت است