

الف)

$$y_1 = 2x_1^2 - 1$$

$$y_2 = 2x_2^2 - 1$$

$$\frac{x_1 = x_2}{\text{همه}} \rightarrow$$

$$y_1 = y_2 \rightarrow \boxed{y_1 = y_2}$$

ب) $y_1 + y_2 = 2x_1^2 - 1$ $\xrightarrow{x_1 = x_2}$ $y_1 + y_2 = y_2 + y_2$
 $y_2 + y_2 = 2x_2^2 - 1$

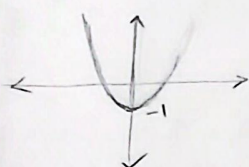
$$y_1 - y_2 + y_1 - y_2 = (y_1 - y_2)(y_1^2 + y_2^2 + y_1 y_2) + (y_1 - y_2) = 1$$

$$(y_1 - y_2)(y_1^2 + y_2^2 + y_1 y_2 + 1) = 0 \quad y_1 - y_2 = 0$$

(+) $\rightarrow$ همواره

$$\boxed{y_1 = y_2}$$

الف) $y = 2x^2 - 1$



تایید هست

ب) $\xrightarrow{\text{همه } x=0}$

$$|y| = 1 \quad y = \pm 1$$

تایید هست

ج) $\xrightarrow{\text{همه } x_1 = x_2}$

$$y_1 = y_2$$

$$\boxed{y_1 = y_2}$$

تایید هست

د) $\xrightarrow{\text{همه } x_1 = x_2}$

$$\sqrt[3]{y_1} = -\sqrt[3]{x_1} + 2$$

$$\sqrt[3]{y_2} = -\sqrt[3]{x_2} + 2$$

$$(\sqrt[3]{y_1} = \sqrt[3]{y_2}) \rightarrow y_1 = y_2$$

تایید هست

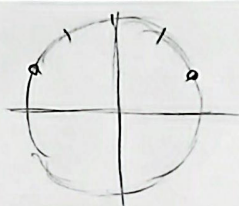
الف) $\frac{\sin \frac{\pi}{6}}{\cos \frac{\pi}{6}} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \boxed{\sqrt{3}}$

ج) $\frac{\sin \frac{11\pi}{6}}{\cos \frac{11\pi}{6}} = \frac{-\frac{1}{2}}{+\frac{\sqrt{3}}{2}} = \boxed{-\frac{1}{\sqrt{3}}}$

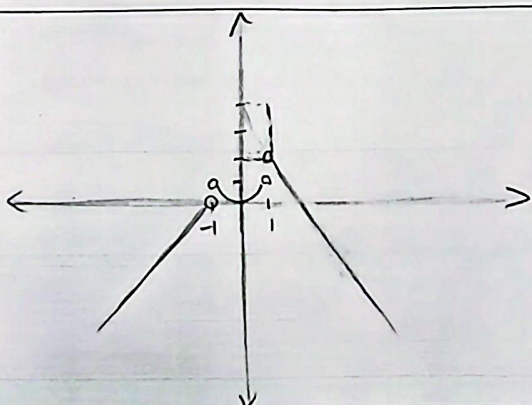
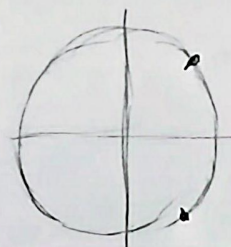
ب) $\frac{\cos \frac{\sqrt{\pi}}{6}}{\sin \frac{\sqrt{\pi}}{6}} = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \boxed{+\sqrt{3}}$

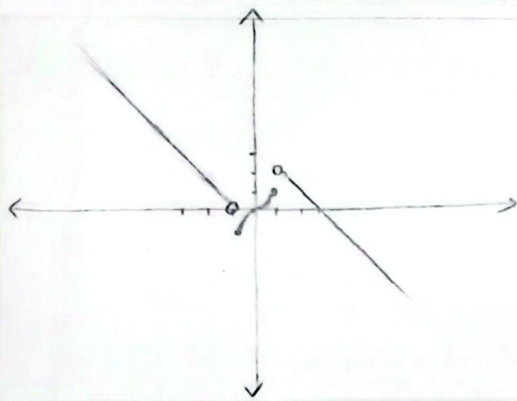
د) $\frac{\cos \pi}{\sin \pi} = \frac{1}{0} \rightarrow$ تقریب نشده

الف) $a \in \frac{0\pi}{6}, \frac{\pi}{6}$



ب) $a \in \frac{\pi}{6}, \frac{\sqrt{\pi}}{6}$





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الف) $y = (x-1)(x-2)(x-3)$

$$\begin{array}{ccccccc} & & 2 & & 3 & & 4 \\ & & | & & | & & | \\ - & 0 & + & 0 & - & 0 & + \end{array}$$

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ب)

$$\begin{array}{ccccccc} & & 2 & & 3^* & & 4 \\ & & | & & | & & | \\ + & 0 & - & 0 & - & 0 & + \end{array}$$

الف)

$$\begin{array}{ccccccc} & & 2 & & 3 & & 4 \\ & & | & & | & & | \\ - & 0 & + & 0 & - & 0 & + \end{array}$$

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ب)

$$\begin{array}{ccccccc} & & 2 & & 3^* & & 4 \\ & & | & & | & & | \\ + & 0 & - & 0 & - & 0 & + \end{array}$$

الف)

$$\begin{array}{r} x^3 - 3x + 2 \mid x-1 \\ -x^3 + x^2 \\ \hline x^2 - 3x + 2 \\ -x^2 + x \\ \hline -2x + 2 \\ +2x - 2 \\ \hline 0 \end{array}$$

$\begin{array}{ccc} \textcircled{1} & \textcircled{-2} & \textcircled{1} \\ (x-1)(x+2)(x-1) \\ \hline (x-2) \\ \textcircled{3} \end{array}$

$$\begin{array}{ccccccc} & & -2 & & 1^* & & 3 \\ & & | & & | & & | \\ + & 0 & - & 0 & - & 0 & + \end{array}$$

ب)

$$\begin{array}{r} \textcircled{1} \textcircled{5} \\ (x-1)(x-2) \\ \hline \textcircled{1} \textcircled{3} \\ (x-1)(x-2) \end{array}$$

$$\begin{array}{ccccccc} & & 1^* & & 2 & & 3 \\ & & | & & | & & | \\ + & 0 & + & 0 & - & 0 & + \end{array}$$

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الف)

$$\frac{x^2(x^2-1)}{x^2+x+2} = \frac{x^2(x-1)(x+1)}{x^2+x+2}$$

منفی $\Delta \rightarrow$

$$\begin{array}{ccccccc} & & -1 & & 0^* & & 1 \\ & & | & & | & & | \\ + & 0 & - & 0 & - & 0 & + \end{array}$$

ب)

$$\frac{x^2+3x+2}{x^2+2x+2}$$

منفی $\Delta \rightarrow$ همیشه مثبت است.

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