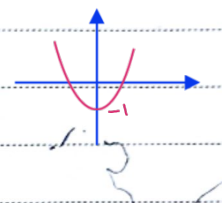


۱) (۱۷۵) $\begin{cases} g_1^3 = 2x_1^2 - 1 \\ g_2^3 = 2x_2^2 - 1 \end{cases} \Rightarrow x_1 = x_2 \Rightarrow g_1 = g_2 \Rightarrow g_1^3 - g_2^3 = 0$
 $(g_1 - g_2)(g_1^2 + g_1 g_2 + g_2^2) = 0$
 $\Rightarrow g_1 = g_2$ تابع است

۲) (۱۷۵) $g^3 + g = 2x^2 - 1$
 $\begin{cases} g_1^3 + g_1 = 2x_1^2 - 1 \\ g_2^3 + g_2 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1 = x_2} g_1^3 + g_1 = g_2^3 + g_2$
 $g_1^3 + g_1 - g_2^3 - g_2 = 0$
 $\Rightarrow (g_1 - g_2)(g_1^2 + g_1 g_2 + g_2^2 + 1) = 0 \Rightarrow g_1 = g_2$ تابع است

۳) (۱۷۵) $y = x^2 - 1$ تابع است


۴) $|g| + xg = x^2 + 1 \Rightarrow |g| = x^2 - xg + 1$
 $x = 0 \Rightarrow |g| = 1 \Rightarrow g = \pm 1$ تابع است

۵) (۱۷۵) $g^3 + x^3 = 2x - 1 \Rightarrow g^3 = 2x - x^3 - 1$ تابع است
 راه حل کامل بنویسید

۶) $\sqrt[3]{g} + \sqrt[3]{x} = 2 \Rightarrow \sqrt[3]{g} = 2 - \sqrt[3]{x}$ تابع است
 راه حل کامل بنویسید

۷) (۱۷۵) $\tan \frac{\pi}{4} \sim 40^\circ$
 $\frac{\sqrt{3}}{\frac{1}{\sqrt{3}}} = \frac{x\sqrt{3}}{\frac{1}{\sqrt{3}}} = \sqrt{3}$ ✓

۸) $\cot \frac{\pi}{4} \sim 40^\circ$
 $\frac{-\sqrt{3}}{\frac{1}{\sqrt{3}}} = -\sqrt{3}$ ✓

۹) $\tan 330^\circ = \frac{-1}{\sqrt{3}} = -\frac{1}{\sqrt{3}}$ ✓

۱۰) $\cot 110^\circ \sim \frac{1}{0}$ تعریف نشده ✓

Subject :

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شماره

الف) $\sin \alpha = \frac{1}{\sqrt{2}} \rightarrow 45^\circ, 135^\circ \sim \frac{\pi}{4}, \frac{3\pi}{4}$ ✓

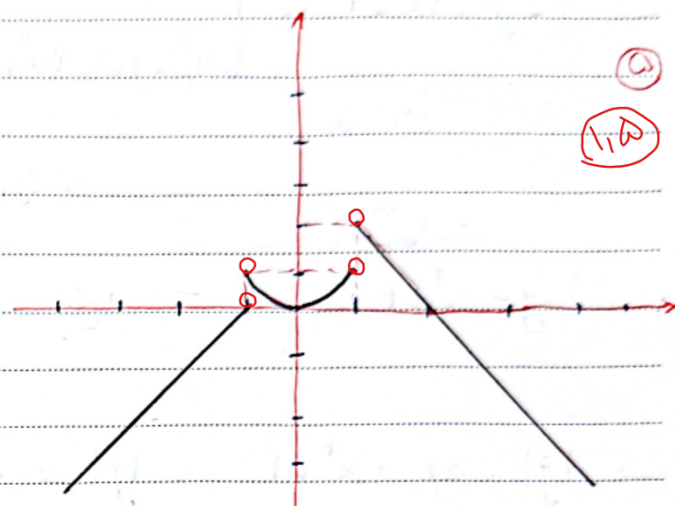
(ف)

(2)

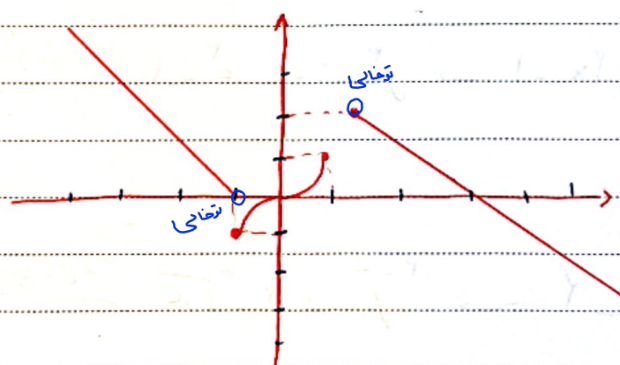
ب) $\cos \alpha = \frac{\sqrt{2}}{2} \rightarrow 45^\circ, 315^\circ \sim \frac{\pi}{4}, \frac{7\pi}{4}$ ✓

(د)

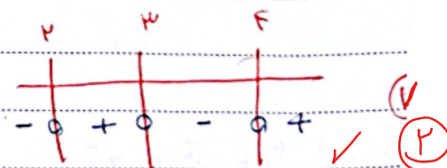
(1.5)



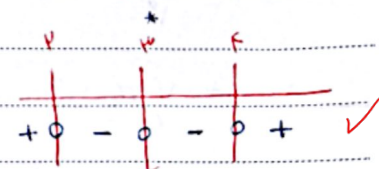
(5) (2)



الف) $y = (x-2)(x-3)(x-4) =$



ب) $y = (x-2)(x-3)^2(x-4) =$

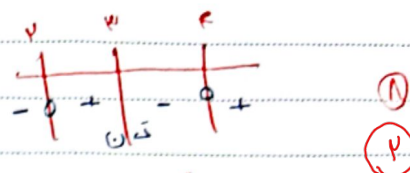


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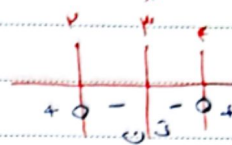
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Grade 10

$$y = \frac{(x-2)(x-4)}{x-3}$$

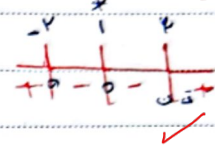


$$y = \frac{(x-2)(x-4)}{(x-3)^2}$$

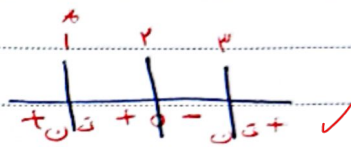


$$y = \frac{x^3 - 3x^2 + 2x}{x-3}$$

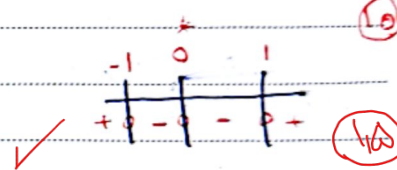
$$\begin{aligned} & \rightarrow (x-1)(x^2 + x - 2) \\ & \rightarrow \frac{(x-1)^2(x+2)}{(x-3)} \end{aligned}$$



$$y = \frac{x^2 - 3x + 2}{x^2 - 5x + 6} = \frac{(x-1)(x-2)}{(x-1)(x-3)}$$



$$y = \frac{x^4 - x^2}{x^2 + x + 2} = x^2(x^2 - 1) \rightarrow x^2(x-1)(x+1)$$



$\Delta =$ منفي

$$\begin{aligned} & \Delta = \text{منفي} \\ & \frac{x^2 + 3x + 4}{x^2 + 2x + 3} \end{aligned} \Rightarrow \begin{aligned} & \text{عبارت همواره مثبت است} \\ & \text{عبارت همواره مثبت است} \end{aligned}$$

ج) $y^3 + y = 3x^2 - 1$

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

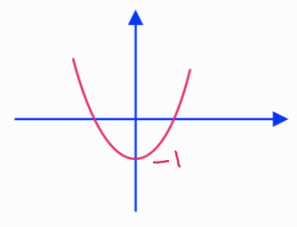
$$y_1^3 - y_2^3 + y_1 - y_2 = 0 \rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2) = 0 \rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0$$

اگر پرانتز اول صفر باشد $\Rightarrow y_1 = y_2$

حواصی ندارد. $\Delta = y_2^2 - 4(1)(y_2^2 + 1) \rightarrow \Delta = -3y_2^2 - 4 \rightarrow \Delta < 0$
 عبارت همیشه منفی

۲

الف) $y = x^2 - 1$



تابع است.

مابراین پرانتز اول صفر است. $\Leftarrow$ تابع است.

ج) $y^3 + x^3 = 2x - 1$

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

تابع است.

د) $\sqrt[3]{y} + \sqrt[3]{x} = 2$

$$\begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x_1} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{x_2} = 2 \end{cases} \xrightarrow{x_1 = x_2} \begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x_1} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{x_1} = 2 \end{cases} \rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \Rightarrow y_1 = y_2$$

تابع است.

