

۱- تابع است

$$y'' = 2x - 1 \rightarrow \begin{cases} y_1'' = 2x_1 - 1 \\ y_2'' = 2x_2 - 1 \end{cases} \xRightarrow{x_1 = x_2} y_1'' = y_2'' \Rightarrow y_1 = y_2$$

۲- تابع است

$$y'' + y = 3x - 1 \rightarrow \begin{cases} y_1'' + y_1 = 3x_1 - 1 \\ y_2'' + y_2 = 3x_2 - 1 \end{cases} \xRightarrow{x_1 = x_2} y_1'' + y_1 = y_2'' + y_2 \rightarrow y_1'' - y_2'' + y_1 - y_2 = 0$$

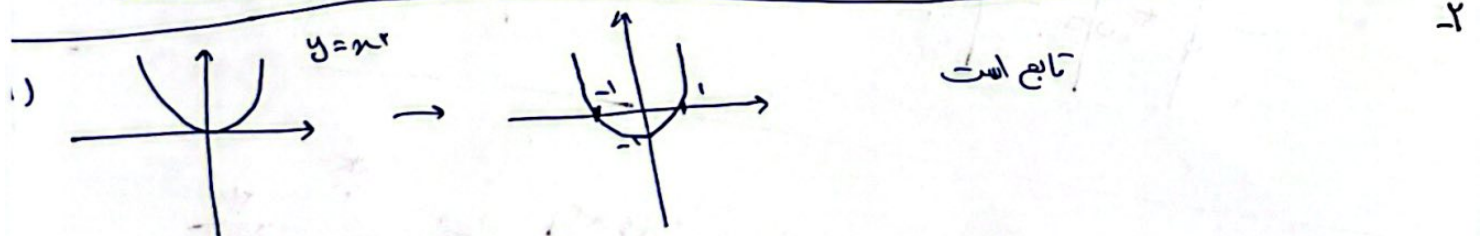
۳- تابع است

$$(y_1 - y_2)(y_1'' + y_1 y_2 + y_2'') + (y_1 - y_2) = 0 \rightarrow (y_1 - y_2)(y_1'' + y_1 y_2 + y_2'' + 1) = 0$$

۴- تابع است

$$\begin{cases} y_1 - y_2 = 0 \rightarrow y_1 = y_2 \\ y_1'' + y_1 y_2 + y_2'' + 1 = 0 \rightarrow y_1 = \frac{-y_2 \pm \sqrt{\Delta}}{2} \end{cases}$$

که $\Delta = y_2'' - 4(y_2'' + 1) = y_2'' - 4y_2'' - 4 = -3y_2'' - 4$



۶- تابع نیست

$$x \rightarrow 0 \quad |y| + (x)y = x^2 + 1 \Rightarrow |y| \rightarrow y = 1 \text{ or } y = -1$$

۷- تابع است

$$y'' + x'' = 2x - 1 \rightarrow \begin{cases} y_1'' = -x_1'' + 2x_1 - 1 \\ y_2'' = -x_2'' + 2x_2 - 1 \end{cases} \xRightarrow{x_1 = x_2} y_1'' = y_2'' \Rightarrow y_1 = y_2$$

۸- تابع است

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

۹- تابع است

$$\tan 45^\circ \rightarrow \frac{\sin}{\cos} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$$

۱۰- تابع است

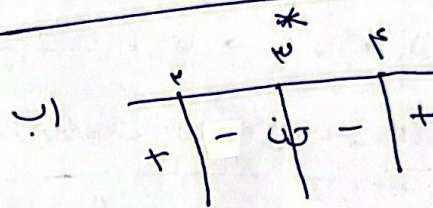
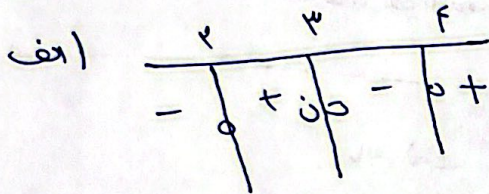
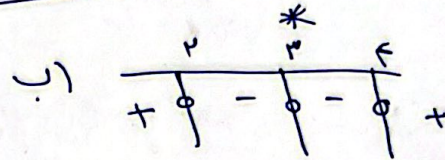
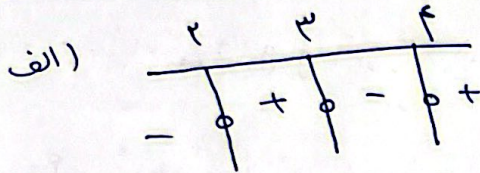
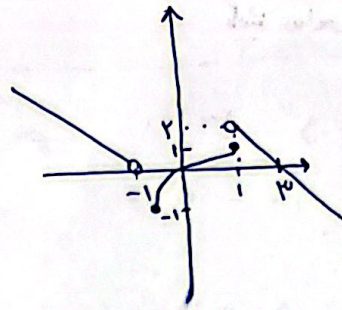
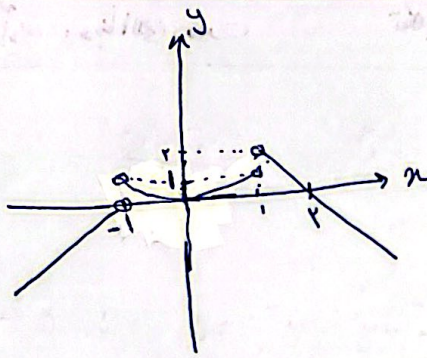
$$\tan 33^\circ \rightarrow \frac{\sin}{\cos} = \frac{-\frac{1}{\sqrt{3}}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$$

۱۱- تابع است

$$\sin a = \frac{1}{2} \rightarrow a = 30^\circ \text{ or } a = 150^\circ$$

۱۲- تابع است

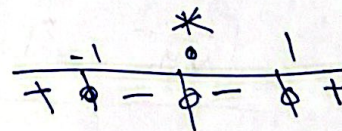
$$\cos a = \frac{\sqrt{2}}{2} \rightarrow a = 45^\circ \text{ or } a = 315^\circ$$



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

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

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



ب) $\frac{x^2+x+2}{x^2+x+2} \Rightarrow 1$

$x^2+x+2 \rightarrow \Delta \rightarrow b^2-4ac$
 $\rightarrow 1-8 = -7$
 $\Delta < 0 \rightarrow -$

$x^2+2x+3 \rightarrow \Delta \rightarrow b^2-4ac$
 $\rightarrow 4-12 = -8$
 $\Delta < 0 \rightarrow -$