

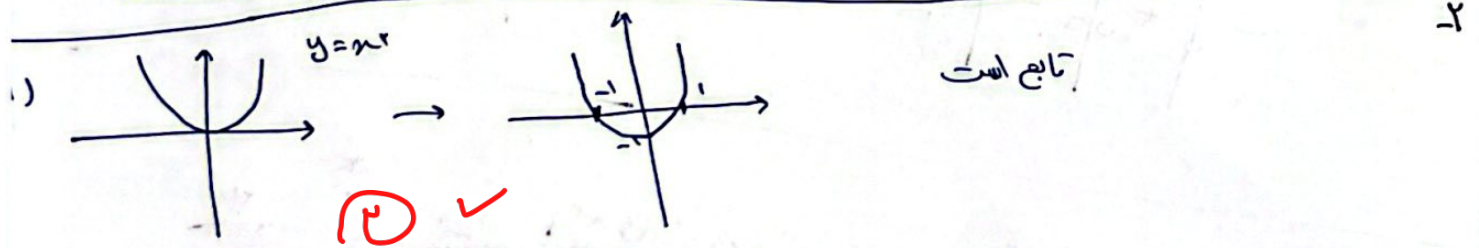
۱- تابع است  $y'' = 2x - 1$   $\Rightarrow y_1' = y_2' \Rightarrow y_1 = y_2$   $\Rightarrow y_1' = 2x_1 - 1$   $\Rightarrow y_2' = 2x_2 - 1$

۲-  $y'' + y = 3x - 1 \Rightarrow y_1'' + y_1 = 3x_1 - 1$   $\Rightarrow y_2'' + y_2 = 3x_2 - 1$   $\Rightarrow y_1'' + y_1 = y_2'' + y_2 \Rightarrow y_1'' - y_2'' + y_1 - y_2 = 0$

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

$\Rightarrow \begin{cases} y_1 - y_2 = 0 \Rightarrow y_1 = y_2 \\ y_1'' + y_1 y_2 + y_2'' + 1 = 0 \Rightarrow y_1 = \frac{-y_2 \pm \sqrt{\Delta}}{2} \end{cases}$   $\Delta = y_2'' - 4(y_2'' + 1) = y_2'' - 4y_2'' - 4 = -3y_2'' - 4$

چون  $\Delta$  همواره منفی می باشد این رابطه هرگز برقرار نیست پس  $y_1 = y_2$  و عبارت همواره تابع است



۱-  $x \rightarrow 0$   $|y| + (x)g = (x)^2 + 1 \Rightarrow |y| \rightarrow y = 1$   $\rightarrow y = -1$  تابع نیست

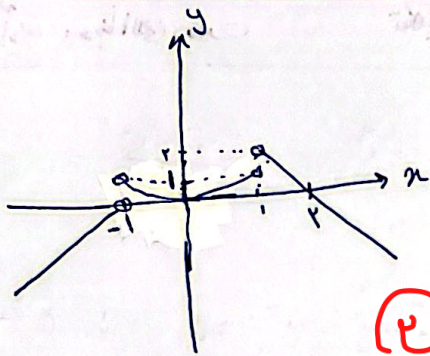
تابع است  $y'' + x'' = 2x - 1 \Rightarrow y_1'' = -x_1'' + 2x_1 - 1$   $\Rightarrow y_2'' = -x_2'' + 2x_2 - 1$   $\Rightarrow y_1'' = y_2'' \Rightarrow y_1 = y_2$

تابع است  $\sqrt[3]{y} + \sqrt[3]{x} = 2 \Rightarrow \sqrt[3]{y_1} = -\sqrt[3]{x_1} + 2$   $\Rightarrow \sqrt[3]{y_2} = -\sqrt[3]{x_2} + 2$   $\Rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \Rightarrow y_1 = y_2$

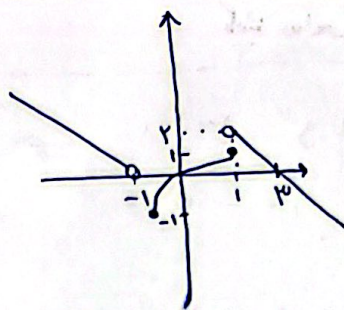
$\tan 45^\circ \rightarrow \frac{\sin}{\cos} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$   $\cot 45^\circ \rightarrow \frac{\cos}{\sin} = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}}$

$\tan 33^\circ \rightarrow \frac{\sin}{\cos} = \frac{-\frac{1}{\sqrt{3}}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$   $\cot 18^\circ \rightarrow \frac{\cos}{\sin} \rightarrow \frac{1}{\frac{1}{2}} \rightarrow 2$  تقریباً ۲

$\sin a = \frac{1}{2} \rightarrow a = 30^\circ$   $\rightarrow a = 150^\circ$   $\cos a = \frac{\sqrt{2}}{2} \rightarrow a = 45^\circ$   $\rightarrow a = 315^\circ$

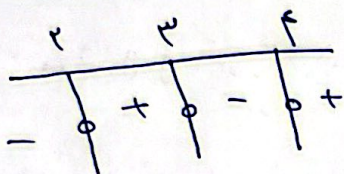


2 ✓



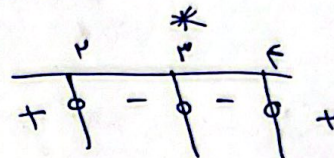
4

الف)



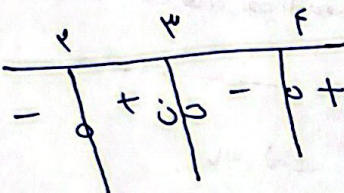
2 ✓

ب)



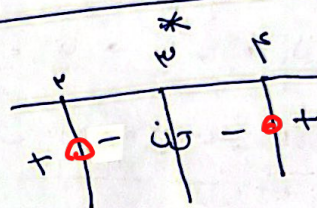
4

الف)



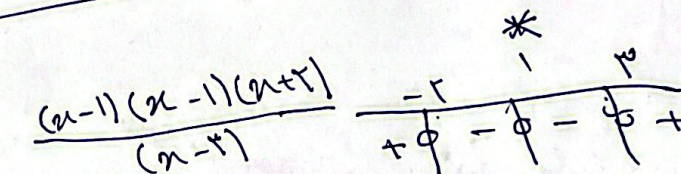
2 ✓

ب)



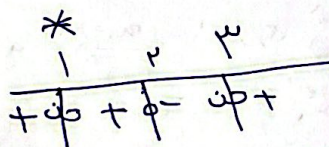
4

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



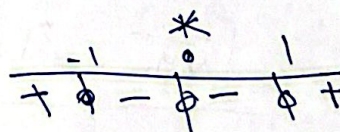
4

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



2 ✓

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



2 ✓

ب)  $\frac{x^2+3x+2}{x^2+5x+4} \Rightarrow$

$x^2+3x+2 \rightarrow \Delta \rightarrow b^2-4ac$   
 $\rightarrow 9-4(1)(1)$   
 $14$   
 $2\sqrt{14} - 4$

$x^2+5x+4 \rightarrow \Delta \rightarrow b^2-4ac$   
 $\rightarrow 25-4(1)(4)$   
 $9$   
 $3 - 4 = -1$   
 $\Delta = -1$