(یازدهم ریاضی)　　　　　　　　　　　　　　　　کاردرکلاس - ۳

Date　　　　No

1- $y=(a-1)x^2+x+3 \Rightarrow \frac{-1}{2a-2}=2 \longrightarrow -1=4a-4 \Rightarrow 4a=3 \Rightarrow a=\frac{3}{4}$

$\Rightarrow y=-\frac{1}{4}x^2+x+3 \Rightarrow x=\frac{-1\pm\sqrt{4}}{-\frac{1}{2}}=\frac{-1\pm 2}{-\frac{1}{2}} \begin{cases} x_1=-2 \\ x_2=6 \end{cases}$

2- $f(x)=mx^2-5x+m$

	x_1		x_2	
$-$	ϕ	$+$	ϕ	$-$

$\Rightarrow m<0 \ , \ \Delta>0$

$\longrightarrow 25-4m^2>0 \longrightarrow m^2<\frac{4}{25} \Rightarrow -\frac{2}{5}<m<\frac{2}{5} \overset{\cap}{\Longrightarrow} -\frac{2}{5}<m<0$

3- $x_1=\frac{3+\sqrt{5}}{3} \ , \ \frac{3-\sqrt{5}}{3} \longrightarrow x=\frac{-b\pm\sqrt{\Delta}}{2a} \Rightarrow \begin{cases} -b=3 \\ b^2-4ac=5 \\ 2a=3 \end{cases} \Rightarrow b=-3, \ a=\frac{3}{2} \Rightarrow 9-6c=5 \Rightarrow c=\frac{2}{3}$

$\Rightarrow y=ax^2+bx+c \rightarrow y=\frac{3}{2}x^2-3x+\frac{2}{3}$

4- $2x^2-8x+m+2=0 \qquad \alpha<\beta \qquad 3\alpha^2+\beta^2=12 = \ldots \qquad m=2$

$x_1=\frac{8\pm\sqrt{64-8m-16}}{4}=\frac{8\pm\sqrt{48-8m}}{4} \quad \begin{cases} \alpha=\frac{8-\sqrt{48-8m}}{4} \\ \beta=\frac{8+\sqrt{48-8m}}{4} \end{cases} \Rightarrow 3\left(\frac{8-\sqrt{48-8m}}{4^2}\right)$

5- $\text{ext} \left| \begin{matrix} 2 \\ 9 \end{matrix} \right. \Rightarrow \frac{-b}{2a}=2 \Rightarrow -b=4a \qquad y=ax^2+bx+c$

$\Rightarrow \frac{-\Delta}{4a}=9 \Rightarrow \frac{-b^2+4ac}{4a}=9 \Rightarrow \frac{-b^2-b\times 5}{-b}=9 \Rightarrow b+5=9 \Rightarrow b=4 \Rightarrow a=-1$

$\Rightarrow y=-x^2+4x+5 \longrightarrow -x^2+4x+5>0 \Rightarrow (x+1)(x-5)<0$

	-1		5	
$+$	ϕ	$-$	ϕ	$+$

$\Rightarrow -1<x<5$

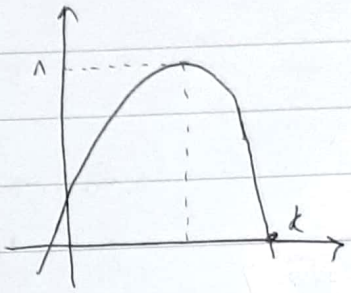
6- $\alpha x^2-7x+9\beta=0$

$\alpha+\beta=\frac{7}{\alpha} \qquad \alpha\times\beta=\frac{9\beta}{\alpha} \Rightarrow \alpha^2=9 \Rightarrow \alpha=\pm 3 \begin{cases} \alpha=3 \Rightarrow \beta=\frac{7}{3}-\frac{9}{3}=-\frac{2}{3}<0 \ \times \\ \alpha=-3 \Rightarrow \beta=-\frac{7}{3}+\frac{9}{3}=\frac{2}{3}>0 \ \checkmark \end{cases}$

$\Rightarrow \frac{1}{\alpha}+\frac{1}{\beta}=-\frac{1}{3}+\frac{3}{2}=\frac{7}{6}$

۷- $x^2+mx-2m=0$ $\quad \alpha^2-m\beta=1$

۸- $f(x)=mx^2+4x+\frac{m}{2}+1$

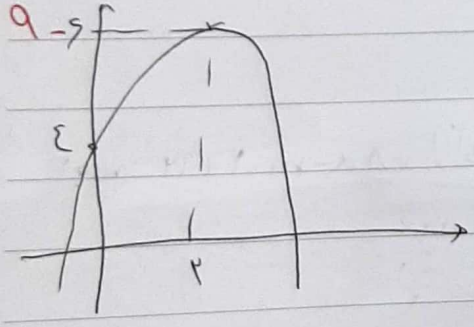


$\Rightarrow -\frac{\Delta}{4a}=1 \Rightarrow \frac{-16+2m^2+8m}{4m}=\frac{3m}{4m} \Rightarrow \frac{m^2-m-2}{2m}=0$ $\quad (m-2)(m+1)$

$\Rightarrow m=0 \rightarrow$ غیق

$m=-1 \longrightarrow -2x^2+4x+4=0 \longrightarrow \Delta>0 \Rightarrow$ ۲ = ✓

$m=2 \longrightarrow 2x^2+4x+8=0 \longrightarrow \Delta<0$

۹- 

$y=ax^2+bx+c$

$\frac{-b}{2a}=2 \Rightarrow -b=4a$

$\begin{cases} 4a+2b+3=0 \\ \Rightarrow b=2 \Rightarrow a=-\frac{1}{2} \end{cases}$

$\Rightarrow \frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{-\frac{b}{a}}{\frac{c}{a}}=-\frac{1}{3}$

۱۰- $x^2-(4a+4)x+(3a^2+2a+2)=0$

$\Delta=0 \Rightarrow 16a^2+16+16a-12a^2-8a-8=0 \Rightarrow 4a^2+8a+8=0 \Rightarrow a^2-2a-1=0$

$a=\frac{2}{2} \longrightarrow \alpha=4$

$a=\frac{-1}{2} \longrightarrow \alpha=\frac{1}{2}$

$4a+4=2\alpha \Rightarrow \alpha=2a+2$