(یازدهم ریاضی)　　　　　　　　　　　　　　　　کوئیز تکمیلی - ۳

۱۳,۷۵

Date　　　　No

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

۲

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

2- $f(x)=mx^2-5x+m$　　$\begin{array}{c} x_1 \quad x_2 \\ \hline - \; + \; - \end{array} \Rightarrow m<0 \,,\ \Delta>0$

۲

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

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

$S=2 \,,\ P=\frac{4}{9}$　　$x^2-2x+\frac{4}{9} \xrightarrow{\times 9}$ ضرایب صحیح　　$\Rightarrow 9-6c=5 \Rightarrow c=\frac{2}{3}$

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

۰

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

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

۰,۵

$2(S^2-2P)-(S)\left(\frac{\sqrt{\Delta}}{|a|}\right)=12$

$m=4$

5- $\max \Big| \begin{matrix} 2 \\ 9 \end{matrix} \Rightarrow \frac{-b}{2a}=2 \Rightarrow -b=4a$　　　$y=ax^2+bx+c$

۲

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

$\Rightarrow y=-x^2+4x+5 \longrightarrow -x^2+4x+5>0 \Rightarrow (x+1)(x-5)<0$　　$\begin{array}{c} -1 \quad 5 \\ \hline + \; - \; + \end{array}$

$\Rightarrow -1<x<5$

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

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

۲

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

0

7- $x^2+mx-2m=0$ $\alpha^2-m\beta=8$ $\alpha^2=2m-m\alpha$ $\alpha+\beta=-m$

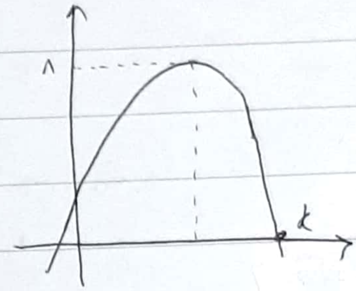
$2m+m^2=8$

$\begin{cases} m=-4 & \Delta<0 \; ✗ \\ m=2 & \Delta>0 \; ✓ \end{cases}$ $S=-m=-2$

8- $f(x)=mx^2+4x+\frac{m}{2}+7$

$(m-4)(m+2)$

$\Rightarrow -\frac{\Delta}{4a}=8 \Rightarrow \frac{-16+2m^2+28m}{4m}=\frac{32m}{4m} \Rightarrow \frac{m^2-2m-8}{2m}=0$



1,25

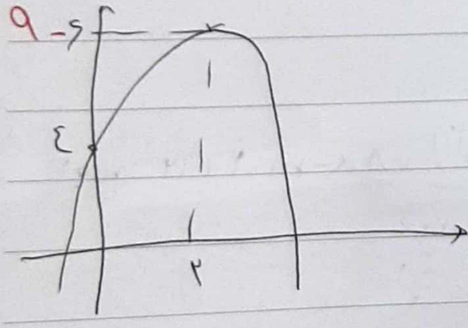
$\Rightarrow m=0 \rightarrow$ غ ق ق

$m=-2 \longrightarrow -2x^2+4x+6=y \longrightarrow \Delta>0 \Rightarrow \boxed{S=2}$

$m=4 \longrightarrow 4x^2+4x+9=y \rightarrow \Delta<0$

$f(x)=-2x^2+4x+6 \begin{cases} x=-1 \\ x=3=k \end{cases}$

9-



$y=ax^2+bx+c$, $c=4$

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

$\underbrace{4a}_{-b}+2b+4=6 \Rightarrow b=2 \Rightarrow a=-\frac{1}{2}$

$\Rightarrow \frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{-\frac{b}{a}}{\frac{c}{a}}=-\frac{2}{4}$

2

10- $x^2-(4a+4)x+(3a^2+6a+3)=0$

$\rightarrow 4-8a-8+3a^2+6a+3=0 \Rightarrow 3a^2-2a-1=0 \rightarrow \begin{cases} a=\frac{3}{3} \rightarrow \alpha=6 \\ a=\frac{-1}{3} \longrightarrow \alpha=\frac{2}{3} \end{cases}$

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

2