نام و نام خانوادگی ..(handwritten name).. پاسخنامه تشریحی تکلیف شماره .... کلاس ....

۱۹٫۵

۱ (۲)

$\frac{-1}{2(a-1)}=2 \qquad -\frac{1}{a-1}=4 \to -1=4a-4 \to 4a=3 \Rightarrow a=\frac{3}{4}$

$1^2-4(-\frac{1}{4})(3)=4 \qquad \frac{-1\pm 2}{-\frac{1}{2}} \begin{cases} 6 \checkmark & \text{طول مثبت} \\ -2 \times & \text{طول منفی} \end{cases}$ ✓

۲ (۲)

x		x_1		x_2	
$f(x)$	$-$	0	$+$	0	$-$

$\to a<0$ (1) $\qquad 25-4m^2>0$

$\Delta>0 \qquad \Delta=0-4(25)(-4)=400 \qquad \frac{\pm\sqrt{400}}{-8} \begin{cases} -\frac{5}{2} \\ \frac{5}{2} \end{cases}$

	$-\frac{5}{2}$		$\frac{5}{2}$	
$-$	0	$+$	0	$-$

$\to (-\frac{5}{2}, \frac{5}{2})$ (2) $\qquad (1)\cap(2)=(-\frac{5}{2}, 0)$ ✓

۳ (۲)

$(x-(\frac{3-\sqrt5}{3}))(x-(\frac{3+\sqrt5}{3}))=(x-1+\frac{\sqrt5}{3})(x-1-\frac{\sqrt5}{3})$

$(x-1)^2-(\frac{\sqrt5}{3})^2 \Rightarrow x^2+1-2x-\frac{5}{9}=x^2-2x+\frac{4}{9}$ ~~ضریب صحیح~~ $\xrightarrow{\times 9} 9x^2-18x+4$ ✓

۴ (۲)

$3\alpha^2+\beta^2=12 \to 2\alpha^2+\alpha^2+\beta^2=12 \Rightarrow 2\alpha^2+S^2-2P=12 \qquad (1),(2) \Rightarrow m=f(1)=4$ ✓

$8\alpha-m-2+16-m-2=12 \to 8\alpha-2m+12=12 \to 8\alpha=2m \to 4\alpha=m$ (1)

$\alpha+\beta=4 \to \beta=4-\alpha \qquad 3\alpha^2+(4-\alpha)^2=12 \qquad 3\alpha^2+16+\alpha^2-8\alpha=12$

$4\alpha^2-8\alpha+16-12=0 \to \alpha^2-2\alpha+1=0 \qquad \Delta=4-4(1)(1)=0 \qquad -\frac{b}{2a}=\frac{2}{2}=1=\alpha$ (2)

۵ (۲)

$y=a(x-h)^2+k \to y=a(x-2)^2+9 \qquad c=5 \to (0,5)$

$5=a(0-2)^2+9 \Rightarrow -4=4a \to a=-1 \qquad -1(x-2)^2+9=-x^2-4+4x+9$

$-x^2+4x+5=y$

	-1		5	
$-$	0	$+$	0	$-$

$\to (-1,5)$ ✓

$\alpha+\beta=-\frac{-7}{1} \Rightarrow \alpha+\beta=\frac{7}{1} \Rightarrow \alpha^2+\beta\alpha=7$ ① ۱/۷۵

$\alpha\beta=\frac{9\beta}{\alpha} \to \alpha=\frac{9}{\alpha} \to \alpha^2=9$ ② $\begin{cases}\alpha=3\\ \alpha=-3\end{cases}$ خواسته سوال: $\frac{1}{\alpha}+\frac{1}{\beta}=\boxed{\frac{7}{6}}$ ۶

①,② $\to 9+\beta\alpha=7 \to \beta\alpha=-2$ / $\alpha=3 \to 3\beta=-2 \to \beta=-\frac{2}{3}$ × منفی است β

$\alpha=-3$ ✓ $\to -3\beta=-2 \to \beta=\frac{-2}{-3}=\frac{2}{3}$ ✓ β مثبت است

$S=-m$ ① $P=-2m$ ② $\alpha^2-m\beta=8 \to \alpha^2+[(\alpha+\beta)\beta]=8$ ۲

$\alpha^2+\beta\alpha+\beta^2=8 \to S^2-2P+P=8 \to S^2-P=8$ ③

①②③ $\to m^2+2m=8 \to m^2+2m-8=0$ $\begin{cases}-4 \to \Delta=(-4)^2-4(1)(8)=-16 \times\\ 2 \to \Delta=2^2-4(1)(-4)=20 \checkmark\end{cases}$ ۷

$S=-m \xrightarrow{m=2} S=-2$ ✓

طول راس کمی >0 $\frac{-4}{2m}>0 \to \frac{-2}{m}>0$ $\frac{4}{m}-\frac{8}{m}+\frac{m}{2}+7=8$ $-\frac{4}{m}+\frac{m}{2}=1$ ۱/۷۵

$-8+m^2=2m \to m^2-2m-8=0$ $4-4(1)(-8)=4+32=36$ ۸

$\frac{2\pm\sqrt{36}}{2}$ $\begin{cases}4 \times\\ -2 \checkmark\end{cases}$ منفی را قبول $16-4(-3)(\frac{11}{3})=16+66=82$ $m=\frac{-4\pm\sqrt{82}}{-6}$

$k=\frac{-4-\sqrt{82}}{-6}=\frac{2}{3}+\frac{\sqrt{82}}{6}$

$a(x-h)^2+k \to a(x-2)^2+6=ax^2-4ax+4a+6=f$ ۲

$4a+6=4$ $4a=-2$ $a=-\frac{1}{2} \to -\frac{1}{2}x^2+2x+4=f(x)$

$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{S}{P}$ $S=\frac{-2}{-\frac{1}{2}}=4$ $P=\frac{4}{-\frac{1}{2}}=-8$ $\frac{4}{-8}=-\frac{1}{2}$ ✓ ۹

$4-8a-8+3a^2+6a+3=0 \to 3a^2-2a-1=0$ $4-4(3)(-1)=16$

$\frac{-b\pm\sqrt{\Delta}}{2a}=\frac{2\pm\sqrt{16}}{6}$ $\begin{cases}1\\ -\frac{1}{3}\end{cases}$ $1 \to 8^2-4(1)(12)=16$ ✓ ۲

$-\frac{1}{3} \to (\frac{8}{3})^2-4(1)(\frac{4}{3})=\frac{64}{9}-\frac{16}{3}=\frac{64-48}{9}=\frac{16}{9}$ ✓ ۱۰

$\alpha+\beta=4a+4 \to 2+\beta=4a+4 \to \beta=4a+2$ $1 \to \beta=4(1)+2=6$ ✓

$-\frac{1}{3} \to \beta=4(-\frac{1}{3})+2=-\frac{4}{3}+2=\frac{2}{3}$ ✓

سوال ۸

$\frac{-\Delta}{4a} =$ عرض [illegible] $\qquad -\frac{16-4(m)(\frac{m}{4}+7)}{4m}$

$-\frac{16-m^2-28m}{4m} = -\frac{8-m^2-14m}{2m} = 8$

$+m^2+14m-8 = 16m \Rightarrow m^2-2m-8=0$

$\Delta = b^2-4ac \Rightarrow 4-4(1)(-8)=36 \qquad m=\frac{-b\pm\sqrt{\Delta}}{2a}$

k ثابت است!

$\frac{2\pm6}{2}$ $\begin{cases} 4 \times \\ -2 \checkmark \end{cases}$ غ.ق.ق [illegible] $\qquad \checkmark\ -2x^2+4x+\frac{7-1}{2}$ $\begin{cases} x=-1 \\ x=3 \end{cases}$