۱۷,۵

۱-

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

$\frac{-1}{2a-2}=2$ $4a-4=-1$ $4a=3 \to \boxed{a=\frac{3}{4}}$ $\frac{-1\pm2}{-\frac12}=\boxed{(+,2)}$ ✓

(۲)

۲-

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

	x_1		x_2	
	$-$		$+$	$-$

$m<0$ II

$25-4m^2>0 \to 25>4m^2 \to \frac{25}{4}>m^2 \to -\frac{5}{2}<m<\frac{5}{2}$ I

$I\cap II \to \boxed{-\frac{5}{2}<m<0}$ ✓

(۲)

۳-

$x_1=\frac{3+\sqrt5}{3}$ $x_2=\frac{3-\sqrt5}{3}$ $S=2$ $P=\frac{4}{9}$ x^2-Sx+P

$x^2-2x+\frac{4}{9}$ ✓ $\to 9x^2-18x+4=0$

سوال گفته با ضرایب صحیح!

(۱,۵)

۴-

$2x^2-8x+m+2=0$ $2\alpha^2+\beta^2=12$ $\alpha^2+\beta^2=S^2-2P$ (16, $m+2$)

$\beta^2=14-m-\alpha^2 \to 2\alpha^2+14-m-\alpha^2=12$

$2\alpha^2-m=-2 \to m=2\alpha^2+2$ $\alpha+\beta=4$ $\beta=4-\alpha$

$\alpha\beta=\frac{m+2}{2} \to \alpha\beta=\frac{2\alpha^2+4}{2} \to \alpha\beta=\alpha+2 \to 4\alpha-\alpha^2=\alpha+2 \to \alpha^2-3\alpha+2=0$ (1, 2)

$\alpha=1$, $\beta=3 \to m=2\alpha^2+2 \to \boxed{m=4}$ ✓

(۲)

۵-

$S(2,9)$ $ax^2+bx+c=y$ $c=5$

$\frac{-b}{2a}=2 \to \boxed{b=-4a}$ $x=2 \to 4a+2b+5=9$ ($-b$) $\to b+5=9$ $\to \boxed{b=4} \to \boxed{a=-1}$

$-x^2+4x+5=y$ $x_1=-1$ $x_2=+5$

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

$\boxed{-1<x<5}$ ✓

(۲)

۶-

$ax^2-7x+9\beta=0$ $\beta>0$ $\frac{1}{\alpha}+\frac{1}{\beta}=? \to \frac{\alpha+\beta}{\alpha\beta} \to \frac{\frac{7}{a}}{\frac{9\beta}{a}}=\frac{7}{9\beta}=\frac{7}{6}$ ✓

(۲)

$\beta^2\alpha-7\beta+9\beta=0 \to \alpha\beta^2+2\beta=0 \to \beta(\alpha\beta+2)=0$

$\alpha+\beta=\frac{7}{a} \to \frac{7a}{9}=\frac{7}{9}$ $7a^2=7\times9$ $9(\frac{\beta}{\alpha})+2=0 \to \frac{\beta}{\alpha}=-\frac{2}{9}$ $\beta=-\frac{2}{9}\alpha$

$a=\pm3 \to \boxed{\alpha=-3}$ ✓ $\boxed{\beta=\frac{2}{3}}$ ✓

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

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

$x=\beta \to \beta^2+m\beta-2m=0 \to m\beta=-\beta^2+2m \qquad m^2+4m-2m=8$

$\boxed{\cancel{-4} \text{ یا } +2}$ ✓

$m^2+2m-8=0$

$\Delta=4+32=36$

$\frac{-2\pm 6}{2}=2,\ -4$ ✗ m_2 $\Delta<0$ غلط

1,75

$mx^2+4x+\frac{m}{2}+7=f(x)$ $\quad y_S=8 \quad \Delta=16-4(m)(\frac{m}{2}+7)=-2m^2-28m$

$\frac{-\Delta}{4m}=8 \quad 32m=-\Delta \to m=-\frac{\Delta}{32} \to \frac{-16+2m^2+28m}{32}=m$

$\frac{-8+m^2+14m}{16}=m \qquad m^2+14m-8=16m \to m^2-2m-8=0$

$\frac{2\pm 6}{2}=-2$ ✓, $+4$ ✗

~~$-4x^2+4x+5=f(x)$~~

$\Delta=16+80=96 \qquad \boxed{\frac{-4+4\sqrt{6}}{2}}$

$f(x)=-2x^2+4x+6=0 \to \begin{cases} x=-1 \\ x=3 \end{cases}$ ✓ کاملش است!

1

$f(x)=A(x-x_{راس})^2+y_{راس} \to f(x)=A(x-2)^2+6 \xrightarrow{x=0} 4A+6=4$ $\quad \boxed{A=-\frac{1}{2}}$ دقت!

1,75

$-\frac{1}{2}x^2+2x-2+6 \to -\frac{1}{2}x^2+2x+4$

$\frac{1}{\alpha}+\frac{1}{\beta}=\frac{\alpha+\beta}{\alpha\beta}=\frac{+4}{-8}=\boxed{-\frac{1}{2}}$

$x^2-(4a+6)x+(3a^2+6a+3)=0 \qquad x_1=2$

1,5

$4-8a-8+3a^2+6a+3=0 \to 3a^2-2a-1=0 \begin{cases} 1 \\ -\frac{1}{3} \end{cases}$ اینم درسته!

$x^2-8x+12x=0$

$(x-2)(x-6)$

$\downarrow$

6 ✓

$a=-\frac{1}{3} \to 3x^2-8x+4=0 \begin{cases} x=2 \\ x=\frac{2}{3} \end{cases}$