نام و نام خانوادگی ......پارسا عباسیان...... پاسخنامه تشریحی تکلیف شماره ۱۳...... کلاس ...یازدهم ریاضی......

۱

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

$-\frac{b}{2a}=2 \Rightarrow \frac{-1}{2a-2} \rightarrow 2 \rightarrow \dots \rightarrow 4a=3 \rightarrow a=\frac{3}{4}$

$y=-\frac{1}{4}x^2+x+3 \Rightarrow x^2-4x-12=(x-6)(x+2)$

$6 \quad -2 \quad \alpha$

۲

$\text{I} \rightarrow m<0$ مخالف هم علامت

$\Delta=b^2-4ac=25-4m^2>0 \rightarrow (5-2m)(5+2m)>0$ بین $\boxed{\frac{5}{2}, -\frac{5}{2}}$

$\text{II} \quad m\in\left(-\frac{5}{2}, \frac{5}{2}\right)$

$\text{I}\cap\text{II} \rightarrow \left(-\frac{5}{2}, 0\right)$

۳

$\alpha=\frac{3-\sqrt{5}}{3} \rightarrow \alpha+\beta=\frac{3-\sqrt{5}+3+\sqrt{5}}{3}=2$

$\beta=\frac{3+\sqrt{5}}{3} \rightarrow \alpha\beta=\frac{3-\sqrt{5}}{3}\times\frac{3+\sqrt{5}}{3}=\frac{9-5}{9}=\frac{4}{9}$

$x^2-Sx+P \rightarrow x^2-2x+\frac{4}{9} \rightarrow 9x^2-18x+4$

۴

$3\alpha^2+\beta^2=12 \rightarrow 2\alpha^2+2\beta^2+\alpha^2-\beta^2=12 \rightarrow 2\underbrace{(\alpha^2+\beta^2)}_{S^2-2P}+(\alpha+\beta)(\alpha-\beta)$

$2(16-m-2)+4\left(\frac{\sqrt{\Delta}}{|a|}\right)=12$

$28-2m+4\left(\frac{\sqrt{64-8m-16}}{2}\right)=12 \rightarrow 28-2m+2\sqrt{48-8m}=12$

$2\sqrt{48-8m}=-16+2m \rightarrow 192-32m=256+4m^2-64m \rightarrow 4m^2-32m+64=0$

$m^2-8m+16=0 \rightarrow (m-4)^2=0 \rightarrow m=4$

۵

$12 \rightarrow \frac{-b}{2a}=2 \rightarrow -b=4a \quad b=-4a$

$y=a(x-h)^2+k \rightarrow 5=a(0-2)^2+9 \rightarrow a=-1$

$y=-x^2+4x+5 \rightarrow \Delta>0 \rightarrow y=(x-5)(x+1)=0$

$5 \quad -1$

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

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

$\Rightarrow \Delta<0 \rightarrow (-1, 5)$

$\alpha x^2 - 7x + 9\beta > 0 \qquad \beta > 0$

$\to \alpha(\alpha^2) - 7\alpha + 9\beta = 0 \to \alpha^3 - 7\alpha + 9\beta = 0 \to \alpha^3 - 9\alpha = 0$

$\alpha(\alpha^2 - 9) = 0 \to \alpha > 0 \to \alpha = \pm 3 \to 3$ ✓

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

$\frac{9\beta}{\alpha} \to 9\beta = -29\alpha \qquad \beta > 0 \;\downarrow \frac{2}{3} \quad \alpha < 0 \to \alpha = -3 \qquad \frac{1}{\beta} + \frac{1}{\alpha} = \frac{S}{P} = \frac{7}{6}$ 6

$x^2 + mx - 2m = 0 \qquad \alpha^2 = 2m - m\alpha$

$\alpha^2 - m\beta = 8 \to 2m - \underset{(-4)}{m\alpha} - \underset{(2)}{m\beta} = 8 \to 2m - m(\underbrace{\alpha+\beta}_{-m}) = 8$

$m^2 + 2m - 8 = 0 \qquad (m+4)(m-2) = 0$ 7

$\to m = -4 \to x^2 - 4x + 8 \to 16 - 4(8) < 0 \quad$ ✗

$\to m = 2 \to x^2 + 2x - 4 = 0 \to 4 - (4)(-4) > 0$ ✓

$x^2 + 2x + 4 = 0 \qquad \frac{-b}{a} = -\frac{2}{1} \to \boxed{\alpha + \beta = -2}$

$y = mx^2 + 4x + \frac{m}{2} + 7 \to m\left(\frac{m}{2} + 7\right) = \frac{m^2}{2} + 7m$

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

$-2m^2 + 4m + 16 = 0$

$m^2 - 2m - 8 \to (m-4)(m+2) \to -2$ ✓ $\;4$ ✗ 8

$y = -2x^2 + 4x + 6 \to (x-3)(x+1) \to \boxed{K = 3}$

$S = \{2, 6\} \to y = a(x-h)^2 + k \to 4 = a(-2)^2 + 6 \to 4a = -2 \quad a = -\frac{1}{2}$

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

$A = [4$

$x_1 = \frac{-2 + 2\sqrt{3}}{-1} = 2 + 2\sqrt{3}$

$\Delta > 0 \to 4 - 4\left(-\frac{1}{2} \times 4\right) = 12 \qquad x_2 = \frac{-2 - 2\sqrt{3}}{1} = 2 - 2\sqrt{3}$ 9

$\frac{1}{2 + 2\sqrt{3}} + \frac{1}{2 - 2\sqrt{3}} \to \frac{2 - \cancel{2\sqrt{3}} + 2 + \cancel{2\sqrt{3}}}{4 - 12} = \frac{4}{-8} = -\frac{1}{2}$

$x = 2$

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

$3a^2 - 2a - 1 = 0 \to a^2 - 2a - 3 = 0 \quad (a+1)(a-3) = 0 \to a = 1, \; a = -\frac{1}{3}$

$a = 1 \to x^2 - 8x + 12 \quad (x-2)(x-6) \to 2, 6$ 10

$a = -\frac{1}{3} \to x^2 - \frac{8}{3}x + \frac{4}{3} \to 3x^2 - 8x + 4 = 0 \qquad x^2 - 8x + 12 = (3x-2)(x-2) \quad \frac{2}{3} \quad 2$

$\boxed{x \neq \frac{2}{3}, 2, 6}$