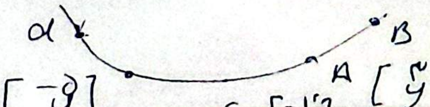
نام و نام خانوادگی پارسا [illegible] پاسخنامه تشریحی تکلیف شماره ۱۹ کلاس یازدهم ریاضی

$\beta = 3\alpha$ $\alpha+\beta = \frac{a}{2} \to \alpha = 3\alpha + 3\beta$ $\alpha\beta = \frac{4}{3} \to \alpha(3\alpha) = \frac{4}{3} \to 3\alpha^2 = \frac{4}{3} \to \begin{cases} \alpha = \frac{2}{3} \to \beta = 2 \to a = 8 \\ \alpha = -\frac{2}{3} \to \beta = -2 \to a = -8 \end{cases}$ $a_1 - a_2 \to 8-(-8) = 16$	۱
$36x^2 - (m+14)x + 1 = 0 \to \sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = S$ $\underbrace{\left(\frac{1}{\alpha} + \frac{1}{\beta}\right)}_{\frac{S}{P}} + 2\sqrt{\frac{1}{\alpha\beta}} = 25 \to (m+14) + (12) = 25 \to S = \frac{-b}{a} = \frac{m+14}{36}$ $m+14 = 13$ $m = -1$ $P = \frac{1}{36}$ $mx^2 + 2x + 2 = 0 \to P' = \frac{2}{m} = \boxed{-2}$	۲
$4x^3 + kx^2 - 9x - 2 = 0$ $\left.\begin{matrix} S=1 \\ P=-2 \end{matrix}\right\} x^2 - x - 2 = 0 \to x^2 - x = 4x^3 + kx^2 - 9x \to x(x-1)$ $= x(4x^2 + kx - 9)$ $\to 4x^2 + x(k-1) - 8 = 0$ $\alpha\beta = -\frac{8}{4} = -2 \to S = \frac{-k+1}{4} = 1 \to -k+1 = 4$ $k = -3$	۳
$\alpha^2 + 2\alpha^2 + 2\beta^2 \to 2(\alpha^2+\beta^2) \to S^2 - 2P \to (-6)^2 - 2a = 36 - 2a$ $\underbrace{a + (9-a)}_{18-0} + 6\sqrt{9-a} + \underbrace{2(36-2a)}_{72-4a} = 12\sqrt{2} + 18$ $\alpha = -3 - \sqrt{9-a}$ $\beta = -3 + \sqrt{9-a}$ $90 - 5a + 6\sqrt{9-a} = 12\sqrt{2} + 18 \to 5 - 5a + 6\sqrt{9-a} = 12\sqrt{2}$ $14\sqrt{9-a} = 12\sqrt{2} \to 9-a = 8 \to a = 1$	۴
$x^4 - 7x^2 - 5 = 0 \to$ $2P^2 - 3SP + 2S$ $t_1 = \frac{7+\sqrt{69}}{2}$ ق ق $t_2 = \frac{7-\sqrt{69}}{2} < 0$ غ ق ق $x = t \to t^2 - 7t - 5 = 0 \to \Delta = 49 + 20 = 69$ $x^2 = t \to \frac{7+\sqrt{69}}{2} \to x_1, x_2 = \pm\sqrt{\frac{7+\sqrt{69}}{2}}$ $S = 0$ $2P^2 = 2\left(\frac{49+69+14\sqrt{69}}{4}\right) \to 2P^2 = \frac{118+14\sqrt{69}}{2} = 59 + 7\sqrt{69}$ $\to P = \frac{7+\sqrt{69}}{2}$	۵

$x = z + \frac{1}{2}$ $z = x - \frac{1}{2} \rightarrow 2ax(x-\frac{1}{2})^2 + a(x-\frac{1}{2}) - 6 = 2ax^2 - ax - 6$ $2x^2 - ax + b = 0 \begin{cases} S = \frac{a}{2} \\ P = \frac{b}{2} \end{cases}$ $\quad 2ax^2 + ax - 6 \begin{cases} S = -\frac{1}{2} \rightarrow \alpha+\beta = \frac{1}{2} \quad \frac{\alpha}{2} \rightarrow a = 1 \\ P = -3 \\ b = -6 \end{cases}$ $[\frac{ab}{4}] = -2$	6
$S = 1 \quad a + b = 1 \quad b = 1 - a \qquad P = \frac{-b}{a}$ $ax^2 - ax - b = 0$ $40\beta^2 + 20\alpha^2 - 20\beta = 17$ $40(1-\alpha)^2 + 20\alpha^2 - 20(1-\alpha) = 17 \rightarrow 60\alpha^2 - 60\alpha + 3 = 0 \begin{cases} S = 1 \\ P = \frac{1}{20} \end{cases}$ $\lvert\alpha - \beta\rvert = \sqrt{S^2 - 4P} = \frac{2}{\sqrt{5}}$	7
$x^2 - (a+1)x + a = 0 \longrightarrow 2k+1 \text{ و } 2k-1$ $x^2 - (3a+1)x + b = 0 \longrightarrow 2k' \text{ و } 2k'+2$ $a = (2k+1)\times(2k-1) = 4k^2 - 1$ $a + 1 = 4k \rightarrow a = 4k - 1$ $4k^2 - 4k = 0 \quad 4k(k-1) = 0 \quad k = 1 \quad a = 3 \quad k = 0$ $b = 4k'^2 + 4k' \text{ و } \underset{a=3}{3a+1} = 4k'+2 \longrightarrow b = 24 \quad \lvert a - b\rvert = \lvert 3 - 24\rvert = 21$	8
$x^2 + x - (1+m^2) = 0$ $S^2 - 2P = (-1)^2 - 2(-(1+m^2)) = 1 + 2 + 2m^2 = 2m^2 + 3 \rightarrow m = 0$ $\Downarrow$ min $\Downarrow$ $\alpha^2 + \beta^2 = 3$	9
$\frac{\alpha+\beta}{2} = \frac{-5+3}{2} = -1 \qquad \alpha^2 + \beta^2 = 5 \quad (\alpha+\beta)^2 - 2\alpha\beta = 5$ $\alpha\beta = -\frac{1}{2}$ $S = -2 \qquad x_S = \frac{-2}{2} = -1$ $y = a(x^2 + 2x - \frac{1}{2}) = 1 = a(1 - 2 - \frac{1}{2}) \rightarrow a = -\frac{2}{3} \quad y = -\frac{2}{3}(x^2 + 2x - \frac{1}{2})$  $\begin{bmatrix} -5 \\ y \end{bmatrix} \quad S = \begin{bmatrix} -1 \\ -1 \end{bmatrix} \quad A \begin{bmatrix} 3 \\ y \end{bmatrix} \quad y = \frac{1}{2}$	10