۲۰

لیلا ابراهیمی شماره تکلیف ۲۰ یازدهم ریاضی

$\alpha = 3\beta = 4\beta = \frac{9}{3}$ (۱)

$3\beta \times \beta = 3\beta^2 \quad 3\beta^2 = \frac{4}{3} \quad \beta^2 = \frac{4}{9} \rightarrow \beta = \pm\frac{2}{3}$

۳

$2 + \frac{2}{3} = \frac{9}{3} \rightarrow \frac{8}{3} = \frac{9'}{3} \rightarrow a_1 = 8 \quad a_1 - a_2 = 8 - (-8) = 16$

$\beta = -\frac{2}{3} \rightarrow \alpha = -2 \rightarrow -2 - \frac{2}{3} = \frac{a}{3} \rightarrow a_2 = -8$

(۲)

$\sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = 5 \rightarrow \frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 5 \rightarrow \frac{\sqrt{\beta} + \sqrt{\alpha}}{\sqrt{\alpha\beta}} = 5$

$\alpha\beta = \frac{1}{\beta} \qquad \alpha + \beta = \frac{m+14}{24}$

۳

$\alpha + \beta + 2\sqrt{\frac{1}{24}} = \frac{25}{24} \Rightarrow \frac{m+14}{24} = \frac{25}{24} - \frac{12}{36} = \frac{13}{24}$

$m + 14 - 12 = m = -1$

$mx^2 + 3x + 2 = 0$

$-x^2 + 3x + 2 = 0 \qquad \frac{c}{a} = -2$

(۳)

$(\alpha+\beta)^2 = 1 \rightarrow \alpha^2 + \beta^2 + \underbrace{2\alpha\beta}_{-4} = 1 \rightarrow \alpha^2 + \beta^2 = 5$

$\alpha + 2\beta = 1$ $\Big\}$ $\alpha = 3$, $\beta = -1$

$4 \times (-1)^2 + k + 9 - 2 = 0 \rightarrow \boxed{k = -3}$ ✓

$4 \times 9 + 4k - 18 - 2 = 0 \rightarrow \boxed{4k = -3}$ ✓

۳

Date: Sub:

(4)

$$3a^2 + 2a^2 = 2.5\alpha^2 + 2.5\beta^2 + 0.5\alpha^2 - 0.5\beta^2$$

$$\frac{5}{2}(\alpha^2+\beta^2) + \frac{1}{2}(\alpha^2+\beta^2)$$

$$\alpha^2+\beta^2 = S^2 - 2P = 36 - 2a$$

$$\alpha^2-\beta^2 = (\alpha+\beta)(\alpha-\beta) = -6(\sqrt{36-4a})$$

$$= 6\sqrt{36-4a}$$

$$\frac{5}{2}(\alpha^2+\beta^2) + \frac{1}{2}(\alpha^2-\beta^2) \longrightarrow 90 - 5a + 3\sqrt{36-4a} = 12\sqrt{2} + 85$$

$$90 - 5a = 85 \longrightarrow a = 1 \qquad 3\sqrt{36-4a} = 12\sqrt{2} \longrightarrow \boxed{a = 1}$$

(5)

$$x^2 = t \qquad t = \frac{+7 \pm \sqrt{69}}{2}$$

$$t^2 - 7t - 5 = 0 \qquad x = \pm\sqrt{\frac{7+\sqrt{69}}{2}} \qquad S = 0 \rightarrow P = -\frac{7-\sqrt{69}}{2}$$

$$\Delta = 49 + 20 = 69$$

$$2P^2 - 2PS + 2S = 0 \Rightarrow 2P^2 = \frac{49+69+14\sqrt{69}}{4} \times 2 = \boxed{59 + 7\sqrt{69}}$$

(6)

$$\alpha + \beta = -\frac{1}{2} \qquad \alpha+\beta = -\frac{1}{2} \qquad \alpha + \frac{1}{2} + \beta + \frac{1}{2} = \frac{a}{2}$$

$$\alpha\beta = -\frac{3}{a}$$

$$\alpha + \beta = \frac{a-2}{2} \longrightarrow a = 1 \qquad \alpha+\beta+1 = \frac{a}{2}$$

$$\left(\frac{1}{2}+\alpha\right)\left(\frac{1}{2}+\beta\right) = \frac{1}{4} + (\alpha+\beta)\frac{1}{2} + \alpha\beta = \frac{b}{2}$$

$$\frac{1}{4} - \frac{1}{4} - \frac{12}{4} = \frac{b}{2} \rightarrow b = -6 \qquad \left[\frac{ab}{4}\right] = \left[\frac{1\times -6}{4}\right] = \left[-\frac{3}{2}\right] = -2$$

(7)

$$a\alpha^2 - a\alpha - b = 0 \qquad S = 1$$

$$a\beta^2 - a\beta - b = 0 \rightarrow \beta^2 - \beta = \frac{b}{a} \qquad P = -\frac{b}{a} \qquad 40\beta^2 + 20\alpha^2 - 20\beta = 20\beta^2 + 20\alpha^2 + 20\beta^2 - 20\beta$$

$$20(S^2 - 2P) + 20(\beta^2 - \beta) \Rightarrow 20\left(1 + \frac{2b}{a}\right) + 20\left(\frac{b}{a}\right) = 20 + 40\cdot\frac{b}{a} + 20\cdot\frac{b}{a} = 20 + 60\cdot\frac{b}{a} = 17$$

$$\frac{b}{a} = -\frac{1}{20} \rightarrow b = -\frac{1}{20}a \Rightarrow \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{a^2+4ab}}{|a|} = \frac{\sqrt{a^2 - \frac{a^2}{5}}}{|a|} = \frac{|a|\sqrt{\frac{4}{5}}}{|a|}$$

$$\sqrt{\frac{4}{5}} = \boxed{\frac{2}{\sqrt{5}}}$$

Date: Sub:

(۵)

$a = 2k+1 \times 2k-1 = 4k^2-1$

$a+1 = 4k \rightarrow a = 4k-1$

$\begin{cases} 4k^2-4k = 0 \\ 4k(k-1) = 0 \rightarrow k=1 \\ k=0 \end{cases}$

$a = 3$ (ج)

$b = 4k'^2 + 4k'$

$2a+1 = 4k'+2$

$|a-b| = |3-4| = 1$

$4k'+2 = 10 \rightarrow k' = 2$ ، $b = 24$

(۶)

$\alpha+\beta = -1$

$\alpha\beta = -1-m^2$

$\alpha^2+\beta^2 = S^2-2P = 1-2(-m^2-1) = 3+2m^2$

$m^2 = 0$

$3+2m^2 = 3$ (ب) (ج)

(۱۰)

$y = a(x+1)^2+1 \rightarrow 0 = a(x^2+1+2x)+1$

$\rightarrow 0 = ax^2+a+2ax+1$

$\alpha+\beta = \frac{-2a}{a} = -2 \qquad \alpha\beta = \frac{a+1}{a}$ (ب)

$\alpha^2+\beta^2+2\alpha\beta = 4 \rightarrow 2\alpha\beta = -1$

$\alpha\beta = -\frac{1}{2}$

$\frac{a+1}{a} = -\frac{1}{2} \rightarrow a = -\frac{2}{3}$

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

$y = -\frac{2}{3}+1$

$x=0 \rightarrow \boxed{y = \frac{1}{3}}$

Elipon