نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ... کلاس .....

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$3x^2 - ax + 12 = 0 \rightarrow \frac{c}{a} = \frac{12}{3a} \rightarrow a = 3\beta \rightarrow 3\beta^2 = \frac{12}{3} \rightarrow \beta^2 = \frac{4}{9} \rightarrow \beta = \pm\frac{2}{3}$

$a = \pm 2 \rightarrow$ هر دو با هم صادق باشند $\rightarrow$ $a = -2, \beta = -\frac{2}{3} \rightarrow \alpha+\beta = \frac{-8}{3} = \frac{a}{3} \rightarrow a = -8$

$a = 2, \beta = \frac{2}{3} \rightarrow \alpha+\beta = \frac{8}{3} = \frac{a}{3} \rightarrow a = 8$

$|a_1 - a_2| = |8+8| = \boxed{16}$

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$3ax^2 - (m+14)x + 1 = 0 \quad \frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 5 \rightarrow \frac{\sqrt{\alpha}+\sqrt{\beta}}{\sqrt{\alpha\beta}} = 5$

$\sqrt{\alpha}+\sqrt{\beta} : \sqrt{(\sqrt{\alpha}+\sqrt{\beta})^2} \rightarrow \sqrt{\alpha+\beta+2\sqrt{\alpha\beta}} \rightarrow \sqrt{\frac{\alpha+\beta+2\sqrt{\alpha\beta}}{\alpha\beta}} = 5 \rightarrow$

$\sqrt{\frac{S+2\sqrt{P}}{P}} = 5 \rightarrow \begin{cases} S = \frac{m+14}{3} \\ P = \frac{1}{3} \end{cases} \Rightarrow \sqrt{\frac{\frac{m+14}{3} + \frac{1}{3}}{\frac{1}{3}}} = 5 \rightarrow m = -1$

$ma^2 + 2a + 2 = 0$

$-a^2 + 2a + 2 = 0 \rightarrow P = \frac{2}{-1} = \boxed{-2}$

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$4x^4 + kx^2 - 9x - 2 = 0 \quad \alpha+\beta = 1 \quad \alpha\beta = -2 \rightarrow x^2 - x + 2 = 0 \rightarrow (x-2)(x+1) = 0$

$x = 2, -1$

$x = 2 \rightarrow 32 + 4k - 18 - 2 = 0 \rightarrow 4k + 12 = 0 \quad k = -3$

$x = -1 \rightarrow -4 + k + 9 - 2 = 0 \rightarrow k = -3$

$\boxed{k = -3}$

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$x^2 + 4x + 9 = 0 \quad \alpha < \beta < 0 \quad 3\alpha^2 + 2\beta^2 = 11\sqrt{2} + 15 \quad S = -4, P = 9$

$3\alpha^2 + 2\beta^2 \rightarrow \frac{3}{2}(\alpha^2+\beta^2) + \frac{1}{2}(\alpha^2 - \beta^2) = \frac{3}{2}(S^2 - 2P) + \frac{1}{2}\left(\frac{\sqrt{5}}{|a|}\right) =$

$90 - 5\alpha + 4\sqrt{9-a} = 15 + 11\sqrt{2} \rightarrow \begin{cases} 90 - 4\alpha = 15 \rightarrow a = 1 \\ 4\sqrt{9-a} = 11\sqrt{2} \rightarrow a = 1 \end{cases} \Rightarrow \boxed{a = 1}$

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$x^4 - 7x^2 - 5 = 0 \rightarrow x^2 = t \rightarrow t^2 - 7t - 5 = 0 \rightarrow t = \frac{7 \pm \sqrt{69}}{2}$

$x^2 = \frac{7 \oplus \sqrt{69}}{2} \rightarrow x^2 = \frac{7+\sqrt{69}}{2} \rightarrow x = \pm\sqrt{\frac{7+\sqrt{69}}{2}} \rightarrow S = +\sqrt{\frac{7+\sqrt{69}}{2}} - \sqrt{\frac{7+\sqrt{69}}{2}} = 0$

غیر قابل قبول است چون P منفی است

$P = +\sqrt{\frac{7+\sqrt{69}}{2}} \times -\sqrt{\frac{7+\sqrt{69}}{2}} = \frac{-7-\sqrt{69}}{2} \rightarrow 4P^2 - 3\cancel{6}P + \cancel{3}5 = 0$

$4P^2 = \left(\frac{-(7+\sqrt{69})}{2}\right)^2 \times 4 = \frac{118 + 14\sqrt{69}}{4} \times 4 = \boxed{59 + 7\sqrt{69}}$

$2x^2 - ux + b = 0$ $\quad 2ax^2 + ax - 4 = 0$

$S = \frac{a}{2}, P = \frac{b}{2}$ $\quad \hookrightarrow S = \frac{-1}{2}, P = \frac{-4}{2a} = \frac{-2}{a} \rightarrow a = 1 \rightarrow P = -2$

$\frac{a}{2} = \frac{-1}{2} + \frac{1}{2} + \frac{1}{2} \rightarrow a = 1$, $P = (\alpha + \frac{1}{2})(\beta + \frac{1}{2}) = \underbrace{\alpha\beta}_{-2} + \frac{1}{2}\underbrace{(\alpha + \beta)}_{-\frac{1}{2}} + \frac{1}{4}$

$P = -2 - \frac{1}{2} + \frac{1}{4} = P = -4 \rightarrow \frac{b}{2} = -2 \rightarrow b = -4 \rightarrow \left[\frac{ab}{2}\right] = \left[\frac{-2}{2}\right] = \boxed{-2}$

$ax^2 - ux - b = 0$, $2\beta^2 + 2a^2 - 2\beta = 17 \rightarrow 2(\beta^2 - \beta) + 2(a^2 + \beta^2) = 17$

$\beta^2 \rightarrow a\beta^2 - a\beta - b = 0 \rightarrow a\beta^2 = a\beta + b \rightarrow \beta^2 = \beta + \frac{b}{a}$ $\quad \beta^3 - \beta = \beta\beta + \frac{b}{a} - \beta = \frac{b}{a}$

$a^2 + \beta^2 = s^2 - 2p = 1 + \frac{2b}{a} \rightarrow 2\left(\frac{b}{a} + \frac{2b}{a} + 1\right) = 17 \rightarrow \frac{b}{a} = -\frac{1}{2} \rightarrow a = -2b$

$-2abx^2 + 2abx - b = 0 \rightarrow 2ax^2 - 2ax + 1 = 0 \rightarrow \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{400 - 80}}{12} = \frac{2\sqrt{10}}{10}$

$x^2 - (a+1)x + a = 0$ $\quad x^2 - (2a+1)x + b = 0 \rightarrow a + 2, a \rightarrow |a - a - 2| = 2$

$a+1, a+2 \rightarrow |a+1-a-2| = 2$

$\frac{\sqrt{\Delta}}{|a|} = 2 \rightarrow \frac{\sqrt{a^2 + 1 + 2a - 4a}}{1} = 2$ $\quad \frac{\sqrt{\Delta}}{|a|} = 2 \rightarrow \frac{\sqrt{4a^2 + 1 + 4a - 4b}}{1} = 2$

$\sqrt{(a-1)^2} = 2 \rightarrow a = -1, 3$ $\quad a = -1 \rightarrow \frac{2a+1}{1} = -1 \rightarrow -1 = 2a + 2 \rightarrow a = -\frac{3}{2}$ ✗ $\rightarrow a \in \mathbb{N}$

$a = 3 \rightarrow \sqrt{18 + 1 + 12 - 4b} = 2 \rightarrow 100 - 4b = 4 \rightarrow b = 24, a = 3$

$u = 3 \rightarrow p = 3$ $\quad p = 24$ $\quad |24 - 3| = \boxed{21}$

$ax^2 + x - 1 - m^2 = 0$ $\quad \alpha^2 + \beta^2 \rightarrow s^2 - 2p = 1 + 2 + 2m^2 = 3 + 2m^2$

$2m^2 + 3 \rightarrow \frac{-b}{a} = 0 \rightarrow \frac{\sqrt{\Delta}}{2a} = \boxed{0 + 3 = 3}$

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$A(3, 2)$ $\quad B(a, 2)$ $\quad \alpha^2 + \beta^2 = a$

شیب وتر $\rightarrow \alpha_s = \frac{3-a}{2} = -1$, $y_s = 1 \rightarrow (y-1) = a(x+1)^2$

$-\frac{1}{a} = (x+1)^2 \rightarrow x + 1 = \pm\sqrt{\frac{-1}{a}} \rightarrow x = -1 \pm \sqrt{\frac{-1}{a}} \rightarrow \alpha = -1 + \sqrt{\frac{-1}{a}}$

$\beta = -1 - \sqrt{\frac{-1}{a}}$

$\alpha^2 + \beta^2 = a \rightarrow \left(-1 + \sqrt{\frac{-1}{a}}\right)^2 + \left(-1 - \sqrt{\frac{-1}{a}}\right)^2 = 0 \rightarrow \frac{-1}{a} = \frac{2}{2} \rightarrow a = \frac{-2}{2}$

$x = 0 \rightarrow y - 1 = a \rightarrow y = \boxed{\frac{1}{2}}$ عرض نقطه برخورد

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