

۲۰ عالی نوشتار!

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$\begin{cases} \alpha = 3\beta \\ \alpha\beta = \frac{\epsilon}{3} \end{cases} \Rightarrow 3\beta \times \beta = \frac{\epsilon}{3} \Rightarrow \beta = \pm \frac{\sqrt{\epsilon}}{3} \Rightarrow \alpha = \pm \sqrt{\epsilon}$	۱
$\alpha + \beta = \frac{a}{3} \Rightarrow \begin{cases} \sqrt{\epsilon} + \frac{\sqrt{\epsilon}}{3} = \frac{a}{3} \Rightarrow a = 1 \\ (-\sqrt{\epsilon}) + (-\frac{\sqrt{\epsilon}}{3}) = \frac{a}{3} \Rightarrow a = -1 \end{cases} \Rightarrow 1 - (-1) = 2 \checkmark$	۲
$\sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = \omega \Rightarrow \frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = \omega \xrightarrow{\text{ضرب}} \frac{1}{\alpha} + \frac{1}{\beta} + \frac{2}{\sqrt{\alpha\beta}} = 2\omega \Rightarrow \frac{\alpha + \beta}{\alpha\beta} + \frac{2}{\sqrt{\alpha\beta}} = 2\omega$ $\Rightarrow \frac{m+14}{\frac{34}{4}} + \frac{2}{\sqrt{\frac{34}{4}}} = 2\omega \Rightarrow m+14 + \frac{2}{\frac{1}{4}} = 2\omega \Rightarrow m = -1 \rightarrow -x^2 + 3x + 2 \rightarrow P = -2 \checkmark$	۳
$\alpha, \beta, \gamma = \text{ریشه‌ها} \rightarrow ax^3 + bx^2 + cx + d = 0 \rightarrow \alpha\beta\gamma = -\frac{d}{a}, \alpha + \beta + \gamma = -\frac{b}{a} \Rightarrow \alpha\beta\gamma = \frac{1}{2}$ $\xrightarrow{\alpha\beta = -2} \gamma = -\frac{1}{\epsilon} \Rightarrow \alpha + \beta + \gamma = -\frac{k}{\epsilon} \Rightarrow 1 + (-\frac{1}{\epsilon}) = -\frac{k}{\epsilon} \Rightarrow \frac{\epsilon}{\epsilon} = \frac{-k}{\epsilon} \Rightarrow k = -\epsilon \checkmark$	۴
$\Delta = 4^2 - \epsilon(1)(a) = 34 - \epsilon a \rightarrow \alpha = \frac{-4 - \sqrt{34 - \epsilon a}}{2} \Rightarrow \alpha^2 = \frac{34 + 34 - \epsilon a + 12\sqrt{34 - \epsilon a}}{\epsilon}$ چون α و β ریشه‌ها هستند $\rightarrow 3\sqrt{34 - \epsilon a} = 12\sqrt{\epsilon} \Rightarrow \sqrt{34 - \epsilon a} = 4\sqrt{\epsilon} \Rightarrow 34 - \epsilon a = 16\epsilon \Rightarrow 34 - \epsilon a = 16\epsilon \Rightarrow a = 1 \checkmark$	۵
مجموع ریشه‌ها $\rightarrow 2p^2 - 3sp + 15 \Rightarrow 2p^2 \xrightarrow{x=t} t^2 - vt + 5 = 0 \rightarrow t = \frac{v \pm \sqrt{v^2 - 20}}{2}, t = \frac{v - \sqrt{v^2 - 20}}{2}$ $x = \frac{v \pm \sqrt{v^2 - 20}}{2} \Rightarrow P = -\sqrt{\frac{(v \pm \sqrt{v^2 - 20})^2}{\epsilon}} \Rightarrow 2p^2 = \frac{(v \pm \sqrt{v^2 - 20})^2}{\epsilon} = 59 + v\sqrt{49}$	۶

$\alpha, \beta \rightarrow \sigma^2_{\alpha\beta} = \frac{1}{r} + \beta, \frac{1}{r} + \alpha \rightarrow \alpha + \beta = -\frac{1}{r}, \alpha\beta = -\frac{r}{a} \rightarrow$ $\alpha + \beta + 1 = \frac{a}{r} \Rightarrow a = 1, (\alpha + \frac{1}{r})(\beta + \frac{1}{r}) = \alpha\beta + \frac{1}{r}(\alpha + \beta) + \frac{1}{r^2} \rightarrow -\frac{r}{1} + \frac{1}{r}(-\frac{1}{r}) + \frac{1}{r^2} =$ $-r \rightarrow \frac{b}{r} = -r \rightarrow b = -r \rightarrow \left[\frac{-r(1)}{r} \right] = -r \checkmark$	$\left(\frac{r}{1} \right)$ 6
$r_0\beta^r + r_0\alpha^r + r_0\beta^r - r_0\beta = 1V \Rightarrow r_0(\alpha^r + \beta^r) + r_0(\beta^r - \beta) = 1V = r_0(\delta^r - r_0p) + r_0(\beta^r - \beta) = 1V \rightarrow \delta = -\frac{\alpha}{a}, p = \frac{b}{a}$ $\alpha\beta^r - \alpha\beta - b = 0 \Rightarrow a(\beta^r - \beta) = b \Rightarrow \beta^r - \beta = \frac{b}{a} \rightarrow r_0(1 + \frac{r_0b}{a}) + r_0(\frac{b}{a}) = 1V \Rightarrow \frac{r_0b}{a} = -r$ $\frac{b}{a} = -\frac{1}{r_0} \rightarrow \frac{\sqrt{\Delta}}{ a } = \frac{\sqrt{\epsilon a^2 - \epsilon a(-b)}}{ a } = \frac{\sqrt{a^2 - \epsilon ab}}{ a } \Rightarrow \sqrt{1 + \epsilon(-\frac{1}{r_0})} = \left[\frac{r}{\sqrt{\omega}} \right] \checkmark$	$\left(\frac{r}{1} \right)$ 7
$\alpha, \beta \rightarrow \sigma^2_{\alpha\beta} = \frac{1}{r} + \beta, \frac{1}{r} + \alpha \rightarrow \alpha + \beta = -\frac{1}{r}, \alpha\beta = -\frac{r}{a} \rightarrow$ $\alpha\beta^r - \alpha\beta - b = 0 \Rightarrow a(\beta^r - \beta) = b \Rightarrow \beta^r - \beta = \frac{b}{a} \rightarrow r_0(1 + \frac{r_0b}{a}) + r_0(\frac{b}{a}) = 1V \Rightarrow \frac{r_0b}{a} = -r$ $\frac{b}{a} = -\frac{1}{r_0} \rightarrow \frac{\sqrt{\Delta}}{ a } = \frac{\sqrt{\epsilon a^2 - \epsilon a(-b)}}{ a } = \frac{\sqrt{a^2 - \epsilon ab}}{ a } \Rightarrow \sqrt{1 + \epsilon(-\frac{1}{r_0})} = \left[\frac{r}{\sqrt{\omega}} \right] \checkmark$	$\left(\frac{r}{1} \right)$ 8
$\delta = 1, p = 1 - m^r \Rightarrow \alpha^r + \beta^r = (-1)^r - r(-1 - m^r) = 1 + r + rm^r = rm^r + r \rightarrow \sigma^2_{\alpha\beta} = \left[\frac{r}{1} \right] \checkmark$	$\left(\frac{r}{1} \right)$ 9
$\alpha, \beta \rightarrow \sigma^2_{\alpha\beta} = \frac{1}{r} + \beta, \frac{1}{r} + \alpha \rightarrow \alpha + \beta = -\frac{1}{r}, \alpha\beta = -\frac{r}{a} \rightarrow$ $\alpha\beta^r - \alpha\beta - b = 0 \Rightarrow a(\beta^r - \beta) = b \Rightarrow \beta^r - \beta = \frac{b}{a} \rightarrow r_0(1 + \frac{r_0b}{a}) + r_0(\frac{b}{a}) = 1V \Rightarrow \frac{r_0b}{a} = -r$ $\frac{b}{a} = -\frac{1}{r_0} \rightarrow \frac{\sqrt{\Delta}}{ a } = \frac{\sqrt{\epsilon a^2 - \epsilon a(-b)}}{ a } = \frac{\sqrt{a^2 - \epsilon ab}}{ a } \Rightarrow \sqrt{1 + \epsilon(-\frac{1}{r_0})} = \left[\frac{r}{\sqrt{\omega}} \right] \checkmark$	$\left(\frac{r}{1} \right)$ 10