

$$\alpha = 3\beta, p = \frac{f}{\beta}, S = \frac{a}{\beta} \Rightarrow C = 3\beta^2 = \frac{f}{\beta} \Rightarrow \beta = \pm \frac{\sqrt{f}}{3}$$

$$\beta = \frac{\sqrt{f}}{3} \Rightarrow S = f\beta = \frac{a}{\beta} \Rightarrow \lambda = a \text{ و } \beta = -\frac{\sqrt{f}}{3} \Rightarrow S = f\beta = \frac{a}{\beta} \Rightarrow \alpha = -\lambda$$

$$\lambda - (-\lambda) = 14$$

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$$\sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = \Delta \Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} + \sqrt{\frac{1}{\alpha\beta}} \Rightarrow \frac{\beta + \alpha}{\alpha\beta} + \sqrt{\frac{1}{\alpha\beta}} \Rightarrow \left(S = \frac{m+1f}{\beta^2}, p = \frac{1}{\beta^2} \right)$$

$$\Rightarrow \frac{m+1f}{\frac{1}{\alpha^2}} + \sqrt{\frac{1}{\frac{1}{\alpha^2\beta^2}}} \Rightarrow m + \frac{1f + 12}{14} = 2\Delta \Rightarrow m = -1$$

$$\text{حاصل} = \frac{C}{a} = \frac{p}{m} = (-2)$$

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$$p = \alpha\beta\chi = -\beta\chi = \frac{1}{\epsilon} = \frac{1}{\beta} \Rightarrow \chi = -\frac{1}{\beta}$$

$$S = \alpha + \beta + \chi = -\frac{1}{\epsilon} + 1 = \frac{3}{\epsilon} = -\frac{k}{\epsilon} \Rightarrow k = -3$$

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$$S = -4, p = a \quad \beta^2\alpha^2 + \alpha^2 + \beta^2 \Rightarrow \frac{\beta^2(\alpha^2 + \beta^2) + \alpha^2}{(\alpha + \beta)^2\alpha\beta} = \frac{\beta^2(34 - 4a) + \alpha^2}{\beta^2 - 4a} = 12\sqrt{2} + 10$$

$$\Delta = 34 - 4a \Rightarrow \Delta = \frac{-4 \pm \sqrt{16 - 4a}}{2} \Rightarrow \alpha = -3 - \sqrt{9 - a}, \beta = -3 + \sqrt{9 - a}$$

$$\sqrt{\beta^2 - 4a} + 18 - 4 + 9\sqrt{9 - a} = 12\sqrt{2} + 10 \Rightarrow 90 - 4a = 10 \Rightarrow a = 1$$

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$$S = 7, p = -2 \Rightarrow \text{دورس مختلف علامت} \Rightarrow \frac{2(20) - 3(7)(-2) + 14}{5} = 199$$

$$\text{دورس فقط دورس دار} \Rightarrow \frac{2(20) - 3(7)(-2) + 14}{5} = 199$$

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$$z^2 - vt - \Delta = 0 \rightarrow t = \frac{v \pm \sqrt{v^2 - 4\Delta}}{2}$$

$$a^2 = \frac{v \pm \sqrt{v^2 - 4\Delta}}{2} \rightarrow \begin{cases} a_1 = \sqrt{\frac{v + \sqrt{v^2 - 4\Delta}}{2}} \\ a_2 = -\sqrt{\frac{v + \sqrt{v^2 - 4\Delta}}{2}} \end{cases} \rightarrow S = 0, p = \left(\frac{-v + \sqrt{v^2 - 4\Delta}}{2} \right)$$

$$r p^2 - r_3 p + r_5 = 29 + \sqrt{49}$$

$\alpha = \alpha' + 0.1a \quad \beta = \beta' + 0.1a \quad \alpha + \beta = \frac{a}{\gamma} \quad \alpha' + \beta' = -\frac{1}{\gamma} \quad \alpha' + \beta' = \alpha - 0.1a + \beta - 0.1a = -\frac{1}{\gamma}$ $\Rightarrow \alpha + \beta = \frac{1}{\gamma} \Rightarrow a = 1 \Rightarrow \underbrace{\gamma x^2 + x - 4 = 0}_{\Delta = 89} \Rightarrow x = \frac{-1 \pm \sqrt{89}}{\gamma} \Rightarrow -\gamma \alpha' \Rightarrow \alpha = -1.0$ $\alpha \beta = \frac{b}{\gamma} = -3 \Rightarrow b = -4 \quad \left[\frac{-4 \times 1}{\gamma} \right] = (-2)$	6
$\gamma_0 \beta^r + \gamma_0 \alpha^r + \gamma_0 \beta^r - \gamma_0 \beta = 1 \Rightarrow \gamma_0 (\alpha^r + \beta^r) + \gamma_0 (\beta^r - \beta) = 1$ $= \gamma_0 (S^r - \gamma p) + \gamma_0 (\beta^r - \beta) = 1 \quad \text{و } S = 1, b = -\frac{b}{\gamma} \quad (\text{بما } \alpha \beta - b = 0 \text{ بالمراسلة})$ $\alpha \beta^r - \alpha \beta - b = 0 \Rightarrow \alpha (\beta^r - \beta) = b \Rightarrow \beta^r - \beta = \frac{b}{\alpha}$ $\gamma_0 (S^r + \gamma p) + \gamma_0 (\beta^r - \beta) = 1 \Rightarrow \gamma_0 \left(1 + \frac{\gamma b}{\alpha}\right) + \gamma_0 \left(\frac{b}{\alpha}\right) = 1 \Rightarrow \gamma_0 + \frac{\gamma_0 b}{\alpha} + \frac{\gamma_0 b}{\alpha} = 1 \Rightarrow \frac{4\gamma_0 b}{\alpha} = 1 \Rightarrow \frac{b}{\alpha} = -\frac{1}{\gamma}$ $\frac{\sqrt{\Delta}}{ \alpha } = \frac{\sqrt{(-1)^2 - 4(-b)}}{ \alpha } = \frac{\sqrt{1 + 4b}}{ \alpha } = \frac{ \alpha \sqrt{1 + 4b}}{ \alpha } = \sqrt{1 + 4\left(-\frac{1}{\gamma}\right)} = \sqrt{\frac{\gamma}{\alpha}} = \frac{\gamma}{\sqrt{\alpha}}$	7
$\alpha = \beta + \gamma \Rightarrow \alpha + \beta = a + 1, \alpha \beta = a \Rightarrow \alpha + \beta - 1 = \alpha \beta \Rightarrow \gamma \beta + \gamma - 1 = \beta^r + \gamma \beta$ $\Rightarrow \beta^r = 1 \Rightarrow \beta = \frac{1}{\gamma} \quad \text{و } \alpha = \gamma \Rightarrow \alpha \beta = \gamma \Rightarrow a = \gamma$ $S = \gamma a + 1, p = b, \alpha' = \beta' + \gamma \Rightarrow \gamma \beta' + \gamma = \gamma a + 1 \Rightarrow \beta' = \frac{\gamma a - 1}{\gamma} \Rightarrow \alpha' = \frac{\gamma a + \gamma}{\gamma}$ $\beta' = \gamma, \alpha' = \gamma \Rightarrow \alpha' \beta' = \gamma^2$ $= \alpha \beta' - \alpha \beta = \gamma^2 - \gamma = \gamma$	8
$\alpha^r + \beta^r = (\alpha + \beta)^r - \gamma \alpha \beta = (-1)^r - \gamma (-m^r - 1) = 1 + \gamma m^r + \gamma = 0 \Rightarrow \gamma m^r + \gamma = 0 \Rightarrow m = 0$ الحد الأدنى $\gamma m^r \nearrow \rightarrow \gamma m^r + \gamma \nearrow \gamma$ $\text{Min} = \gamma$	9
$\alpha(\alpha + 1)^r + 1 = 4 \Rightarrow 4 = \alpha^r + \gamma \alpha^r + \alpha + 1 \Rightarrow S^r - \gamma p = 4 - \gamma \left(\frac{\alpha + 1}{\alpha}\right) = 0 \Rightarrow \gamma \alpha + \gamma = -\alpha$ $\Rightarrow \alpha = -\frac{\gamma}{\gamma} \quad \text{الحد الأدنى} = -\frac{\gamma}{\gamma} + 1 = \frac{1}{\gamma}$	10