

$$\beta = 3\alpha \rightarrow p = \frac{e}{\mu} = \frac{c}{\alpha} \Rightarrow \frac{e}{\mu} = \beta \times \alpha = 3\alpha^2 = \frac{e}{\mu} \Rightarrow \begin{cases} \alpha = \frac{2}{3}, \beta = 2 & (1) \\ \alpha = -\frac{2}{3}, \beta = -2 & (2) \end{cases}$$

$$S = \frac{a}{\mu} = \frac{2}{\mu} + \frac{4}{\mu} \Rightarrow \boxed{a = 1}$$

$$S = \frac{a}{\mu} = -\frac{1}{\mu} \Rightarrow \boxed{a = -1}$$

$$\left\{ \begin{array}{l} |a_2 - a_1| = |-1 - 1| = \boxed{2} \\ \text{جواب} \end{array} \right.$$

1

$$\sqrt{\frac{1}{\alpha}} + \sqrt{\frac{1}{\beta}} = 2 \Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} + 2\sqrt{\frac{1}{\alpha\beta}} = 2 \Rightarrow \frac{\alpha+\beta}{\alpha\beta} + 2\sqrt{\frac{1}{\alpha\beta}} = 2 \Rightarrow m + 12 + 12 = 24 \Rightarrow \boxed{m = -1}$$

2

$$-12r^2 + 3m + 2 = 0 \Rightarrow \boxed{-2 = p}$$

جواب

$$\begin{cases} \alpha + \beta = 1 \\ \alpha\beta = -2 \end{cases} \Rightarrow \begin{cases} \alpha(1-\alpha) = -2 \Rightarrow \alpha^2 - \alpha - 2 = 0 \\ \downarrow \\ \alpha = 2, \beta = -1 \end{cases} \Rightarrow \begin{cases} e(1) + ek - 11 - 2 = 0 \Rightarrow \boxed{k = -3} \\ \text{جواب} \end{cases}$$

3

$$\frac{a}{r}(\alpha^2 + \beta^2) + \frac{1}{r}(\alpha^2 - \beta^2) = \frac{a}{r}(5 - 2p) + \frac{1}{r}(5)(\alpha - \beta) = \frac{a}{r}(29 - 2\alpha) + \frac{1}{r}(-9)(\sqrt{\beta - \alpha}) = 90 - 5a + 9\sqrt{9 - a} = 12\sqrt{2} + 18a \Rightarrow \boxed{a = 1}$$

جواب

4

$$t = nr \rightarrow t^2 - vt + a = 0 \rightarrow \Delta = 49 \rightarrow \begin{cases} t_1 = \frac{v + \sqrt{49}}{2} \\ t_2 = \frac{v - \sqrt{49}}{2} \end{cases} \rightarrow \begin{cases} x_1 = \sqrt{\frac{v + \sqrt{49}}{2}} & (1) \\ x_2 = -\sqrt{\frac{v + \sqrt{49}}{2}} & (2) \end{cases}$$

(t > 0)

5

$$(1), (2) \rightarrow S = 0, p = -\frac{v + \sqrt{49}}{2}$$

$$12p^2 - 15p + 15 = 12p^2 = 12\left(-\frac{v + \sqrt{49}}{2}\right)^2 = \frac{118 - 14\sqrt{49}}{2} = \boxed{9 - \sqrt{49}}$$

6

7

8

9

10

$$\left(\frac{1}{\mu} = \frac{5}{\text{عرض الوعاء}} \right)$$