

$$S = \alpha + \beta = \frac{b}{a} = \frac{V}{\alpha} \Rightarrow \alpha^2 + \alpha\beta = V \Rightarrow \begin{cases} \rightarrow -r \Rightarrow 9 - 2\beta = V \\ \rightarrow +r \Rightarrow 9 + 2\beta = V \end{cases} \checkmark$$

$$P = \alpha\beta = \frac{c}{a} = \frac{9\beta}{\alpha} \Rightarrow \alpha^2\beta = 9\beta \Rightarrow \alpha^2 = 9 \Rightarrow \alpha = \pm 3$$

$$\Rightarrow \beta = \frac{V}{\alpha}, \alpha = -3 \Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} = \frac{1}{-3} + \frac{1}{\frac{V}{-3}} = \frac{V}{-3} - \frac{1}{3} = \frac{V}{3} \checkmark$$

$$\alpha^2 - m\beta = 1 \Rightarrow \beta = \frac{\alpha^2 - 1}{m} \Rightarrow \alpha^2 + m\beta - 2m = 0 \Rightarrow -m\beta = \alpha^2 - 2m$$

$$\Rightarrow \underbrace{\alpha^2 + \beta^2 - 2m = 1}_{S^2 - 4P} \Rightarrow \begin{cases} S = -m \\ P = -2m \end{cases} \Rightarrow (-m)^2 - 2(-2m) - 2m = 1$$

$$\Rightarrow m^2 + 2m - 1 = 0 \Rightarrow (m+1)(m-1) = 0 \Rightarrow m = -1, 1$$

$$\Delta > 0 \Rightarrow \begin{cases} \alpha^2 - 9\alpha + 1 = 0 \quad \Delta < 0 \quad \times \\ \alpha^2 + 2\alpha - 9 = 0 \quad \checkmark \end{cases} \Rightarrow S = \frac{-b}{a} = \frac{-2}{1} = -2 \checkmark$$

$$y_s = 1 = \frac{-\Delta}{f_0} \Rightarrow \frac{-(15 - 5x(\frac{m}{1} + 1)(m))}{5m} = 1 \Rightarrow \frac{2m^2 + 21m - 15}{5m} = 1 \Rightarrow 2m^2 - 5m - 15 = 0$$

$$\Rightarrow m = \frac{5 \pm \sqrt{25 + 120}}{4} = \frac{5 \pm 11}{4} \Rightarrow m = \frac{16}{4} = 4 \text{ or } m = \frac{-6}{4} = -\frac{3}{2}$$

$$\Rightarrow -2\alpha^2 + 5\alpha + 5 = 0 \Rightarrow (2\alpha + 1)(\alpha - 5) = 0 \Rightarrow \alpha = -\frac{1}{2} \text{ or } \alpha = 5$$

$$\checkmark K = 3 \text{ } \alpha = 1 \text{ } \beta = 2 \text{ } K \leftarrow$$

$$y = \alpha(\alpha - 2)^2 + 5 \xrightarrow{\text{مشتق}} f = 3\alpha(-2)^2 + 5 \Rightarrow \alpha = -\frac{1}{3}$$

$$\Rightarrow -\frac{1}{3}(\alpha - 2)^2 + 5 = 0 \Rightarrow -\frac{1}{3}\alpha^2 + 2\alpha + \frac{16}{3} = 0 \Rightarrow \frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta}$$

$$\Rightarrow S = \frac{-r}{\frac{1}{3}} = \frac{3}{1} = 3$$

$$P = \frac{f}{-\frac{1}{3}} = -1 \Rightarrow \frac{3}{-1} = -3 \checkmark$$

$$\text{مشتق} \Rightarrow \alpha^2 - 2(\alpha + 1) + (\alpha^2 + 5\alpha + 3) = 0$$

$$\Rightarrow 2\alpha^2 - 2\alpha - 1 = 0 \Rightarrow \alpha = \frac{2 \pm \sqrt{4 + 8}}{4} = \frac{2 \pm \sqrt{12}}{4} = \frac{1 \pm \sqrt{3}}{2}$$

$$\alpha = 1 \Rightarrow \alpha^2 - 1\alpha + 12 \Rightarrow (\alpha - 2)(\alpha - 6) \rightarrow \alpha = 6 \checkmark$$

$$\alpha = -\frac{1}{2} \Rightarrow \alpha^2 - \frac{1}{2}\alpha + \frac{5}{2} \Rightarrow 2\alpha^2 - \alpha + 5 \Rightarrow (\alpha - \frac{1}{2})(2\alpha + 10) = 0 \Rightarrow \alpha = -\frac{5}{2} \checkmark$$