

$$x = -1 \Rightarrow a - b + c = 9 \quad x = 3 \Rightarrow 9a + b + c = 1 \quad \frac{-b}{c} = -1 \Rightarrow b = c$$

$$\Delta a + \Delta a = -A \Rightarrow a = \frac{1}{4}, b = -1 \Rightarrow a - b + c = 9$$

$$\Rightarrow -\frac{1}{4} + 1 + c = 9 \Rightarrow c = \frac{13}{4} \Rightarrow \frac{-2}{c} = -2 + \frac{13}{4} = 0$$

$$\Delta > 0 \Rightarrow m^2 - \varepsilon(c)(m+4) > 0 \Rightarrow m^2 - 4m - \varepsilon > 0$$

$$\Rightarrow (m-12)(m+8) > 0 \Rightarrow$$

$$\begin{array}{c} -12 \quad 12 \\ + \quad - \quad + \end{array}$$

$$\Rightarrow (-\infty, -8) \cup (12, +\infty)$$

$$S > 0 \rightarrow \frac{-b}{a} > 0 \rightarrow -m > 0 \rightarrow m < 0 \quad (II)$$

$$I \cap II \cap III \rightarrow -4 < m < -8$$

$$P > 0 \rightarrow \frac{m+4}{c} > 0 \rightarrow m > -4 \quad (III)$$

$$\alpha + \beta = \frac{1}{\alpha \times \beta} \Rightarrow \frac{-b}{a} = \frac{1}{\frac{c}{a}} \Rightarrow \frac{-b}{a} = \frac{a}{c}$$

$$\Rightarrow \frac{-5m+1}{c} = \frac{c}{-m} \Rightarrow (-5m+1)(-m) = c^2 \Rightarrow (-5m+1)(m+5) = 0$$

$$\Rightarrow m^2 - 5m - 5 = 0 \Rightarrow (m-5)(m+1) = 0 \Rightarrow m = \frac{5}{2} = 2.5 \quad \checkmark$$

$$m = \frac{-5}{2} = -2.5 \quad \times$$

$$x_1 + x_2 = 1, x_1 x_2 = -\varepsilon \quad x_1^2 + \frac{1}{x_1^2} = A \quad x_2^2 + \frac{1}{x_2^2} = B$$

$$\Rightarrow A+B = \frac{1}{x_2^2} + \frac{1}{x_1^2} + x_1^2 + x_2^2 = \frac{x_1^2 + x_2^2}{x_1^2 x_2^2} + x_1^2 + x_2^2 = 1 - \frac{1}{\varepsilon} = \frac{\Delta}{\varepsilon}$$

$$AB = \left(\frac{1}{x_2^2} + x_1^2\right)\left(\frac{1}{x_1^2} + x_2^2\right) = x_1^2 x_2^2 + \frac{1}{x_1^2 x_2^2} = -\varepsilon + \frac{1}{-\varepsilon} = -\varepsilon - \frac{1}{\varepsilon} = (x_1 + x_2)^2 - 2x_1 x_2 = 1 - (-1) = 0$$

$$\Rightarrow AB = \frac{1}{\varepsilon} - 9 - 4\varepsilon = \frac{-4\varepsilon^2 - 9\varepsilon + 1}{\varepsilon} \Rightarrow -4\varepsilon^2 + 9\varepsilon + 1$$

$$x^2 - 1$$

$$\frac{(\sqrt{x^2} + \sqrt{x^2+1})(\sqrt{x^2}-1)}{\sqrt{x^2}} = \sqrt{2} \Rightarrow x^2 - 1 = \sqrt{2} \Rightarrow x^2 - \sqrt{2}x - 1 = 0$$

$$\sqrt{x^2}$$

$$\Rightarrow S = \frac{-b}{a} = \frac{-(-\sqrt{2})}{1} = \sqrt{2}$$

