

۱۳، ۲۵

از مسائل

$$\frac{-b}{2a} = 1 \quad a-b+c=9 \quad 9a+4b+c=1 \Rightarrow a = -\frac{1}{4}, b = -1, c = \frac{17}{4} \rightarrow y = -\frac{1}{4}x^2 - x + \frac{17}{4} \quad (2)$$

$$m^2 - 11m - 12 > 0 \rightarrow (m-12)(m+1) > 0 \rightarrow \frac{-12}{+} \frac{+1}{-} \rightarrow (-\infty, -1) \cup (12, +\infty) \quad (2)$$

$$\frac{1-2m}{2-m} = \frac{3}{2-m} \rightarrow 2m^2 - 8m - 14 = 0 \rightarrow m = \frac{4 \pm \sqrt{154}}{2} \quad (2)$$

$$\frac{1}{x^3} + \frac{1}{(-x)^3} = \frac{1}{x^3} - \frac{1}{x^3} = 0 \rightarrow (x - \frac{1}{x^3} + \frac{1}{x^3})(x - \frac{1}{x^3} + \frac{1}{x^3}) = x^2 + 0 + (-\frac{1}{x^4} + \frac{1}{x^4} - \frac{1}{x^6}) = 0 \quad (2)$$

$$y = x^3 - 6x + \frac{1}{x^3}$$

$$(t^2 + \frac{1}{t^2} + 1)(t^2 - 1) = 2t \rightarrow t^4 - \frac{1}{t^2} = 2t \rightarrow t^6 - 1 = 2t^3 \quad t^3 = z \quad (2)$$

$$z^2 - 2z - 1 = 0 \Rightarrow z = 1 \pm \sqrt{2} \Rightarrow a_1 + a_2 = 2 \quad \checkmark$$

اختلاف بین قدر مطلق (حقیقی مثبت)

$$\frac{a}{b} = \frac{1}{3} \text{ و } \frac{a}{b} = -\frac{1}{3} \rightarrow a = \pm \frac{1}{3}b$$

$$\Delta < 0 \rightarrow 9a^2 + 12a + 9 < 0 \rightarrow (a - \frac{1}{3})^2 < 0 \quad \text{بدون مقدار (همواره مثبت)}$$

$$\frac{-a}{2} = \frac{3}{-2} \Rightarrow a = 3 \quad \checkmark \Rightarrow a \neq b$$

$$x^2 + 4x - 4 = -x^2 - 4x + b \rightarrow b = 8$$

$$r_1 + r_2 = -\frac{1}{2} \text{ و } r_1 r_2 = -\frac{3}{2} \rightarrow \frac{r_1 + r_2 + 1}{2} = \frac{a}{2} \rightarrow a = 1 \quad (2)$$

$$r_1 r_2 + \frac{1}{4}(r_1 + r_2) + \frac{1}{2} = -\frac{3}{2} - \frac{1}{4} + \frac{1}{2} = -\frac{3}{2} \rightarrow \frac{b}{4} = -\frac{3}{2} \rightarrow b = -6 \quad \checkmark$$

$$f(m) + f(m) = 0 \rightarrow m = -m \rightarrow (-m)^2 + 4(-m) + m = 0 \Rightarrow m(m-4) = 0 \quad (2)$$

$$m = 0 \rightarrow m^2 + 4m + 0 = 0 \rightarrow [-1] \text{ و } -0 \rightarrow m - (-1) = 1 \quad \checkmark$$

$$m = 0 \rightarrow m^2 + 4m - 10 = 0 \rightarrow [4] \text{ و } -0 \rightarrow m - (-1) = 1 \quad \checkmark$$

$$(-\infty, -4) \cup (12, +\infty) \textcircled{1}$$

$$\underline{r \sim b}$$

$$S > 0 \rightarrow -m > 0 \rightarrow m < 0 \textcircled{2} \xrightarrow{n} -4 < m < -4$$

$$P > 0 \rightarrow \frac{m+4}{r} > 0 \rightarrow m > -4 \textcircled{3}$$

$$\alpha + \beta = \frac{1}{\alpha\beta} \rightarrow \frac{-(r-m-1)}{r} = \frac{r}{r-m} \rightarrow \begin{cases} m = -1 \text{ فقط } \Delta < 0 \\ m = \frac{r}{r} \checkmark \end{cases}$$

-r

$$S = 1 \quad P = -4$$

-r

$$S' = n_1^r + n_r^r + \frac{1}{n_1} + \frac{1}{n_r} = (n_1 + n_r)(n_1^r + n_r^r - n_1 n_r) + \frac{n_1 + n_r}{n_1 n_r} =$$

$$S(S' - 2P - P) + \frac{S}{P} = \frac{\Delta}{r}$$

$$P' = (n_1^r + \frac{1}{n_r})(n_r^r + \frac{1}{n_1}) = n_1^r n_r^r + n_1^r + n_r^r + \frac{1}{n_1 n_r} = P^r + S^r - 2P + \frac{1}{P}$$

$$= -\frac{r^2 1}{r}$$

$$n^r - S'n + P = 0 \rightarrow \boxed{n^r - \frac{\Delta}{r} n + \frac{r^2 1}{r}}$$

$$-\frac{a}{r} = \frac{r}{-r} \rightarrow \boxed{a = r}$$

-A

$$1 = n^r + rn - r \rightarrow (n+r)(n-1) = 0 \rightarrow \begin{cases} n=1 \rightarrow A(1,1) \\ n=r \rightarrow B(-r,1) \end{cases}$$

$$\boxed{b = r} \leftarrow 1 = -9 + 4 + b$$

$$\boxed{ab = 1}$$