

۱۷,۲۵

نام و نام خانوادگی محمد سرابی پاسخنامه تشریحی تکلیف شماره ۱۳ کلاس ۱۱/۸

$$\frac{-1}{2(a-1)} \Rightarrow -1 \Rightarrow -1(a-1) = -1 \Rightarrow -a+1 = -1 \Rightarrow -a = -2 \Rightarrow a = 2$$

$$y = \frac{1}{x} x^2 + x + 2 \xrightarrow{x(-1)} x^2 - x - 2 = 0 \Rightarrow (x-2)(x+1) = 0 \Rightarrow x_1 = 2, x_2 = -1$$

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$$f(m) = mn^2 + n + m \rightarrow \Delta > 0 \Rightarrow 1 - 4nm + m > 0 \Rightarrow 1 - 4m > 0 \Rightarrow m < \frac{1}{4}$$

$$\frac{n}{m} \mid \frac{n}{-4} + \frac{n}{4} \rightarrow a < 0 \rightarrow m < 0 \quad \text{II}$$

$$\text{II} \cap \text{II} \Rightarrow \boxed{-\frac{1}{4} < m < 0} \quad \checkmark$$

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$$y = ax^2 - 5x + 9 \rightarrow 5 = x_1 + x_2 \Rightarrow \frac{5-\sqrt{\Delta}}{2} + \frac{5+\sqrt{\Delta}}{2} = \frac{10}{2} = 5$$

$$p = x_1 \cdot x_2 = \left(\frac{5-\sqrt{\Delta}}{2}\right) \left(\frac{5+\sqrt{\Delta}}{2}\right) = \frac{25-\Delta}{4} = \frac{4}{4}$$

$$\Rightarrow x^2 - 5x + \frac{4}{4} = 0 \quad \checkmark$$

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$$\alpha + \beta = 4 \mid \alpha^2 + \beta^2 = 12 \Rightarrow \alpha^2 + \beta^2 + 2\alpha\beta = 16 \Rightarrow (\alpha + \beta)^2 = 16 \Rightarrow \alpha\beta = 0$$

$$\rightarrow (16 - 2(\frac{16}{4})) + 2\alpha^2 = 16 \Rightarrow 16 - 8 + 2\alpha^2 = 16 \Rightarrow 2\alpha^2 = 8 \Rightarrow \alpha^2 = 4 \Rightarrow \alpha = \pm 2$$

$$\alpha < \beta \Rightarrow \alpha = \frac{-b - \sqrt{\Delta}}{2a} = \frac{1 - \sqrt{16 - 4(1)(m+4)}}{2} = \frac{1 - \sqrt{12 - 4m}}{2}$$

$$\frac{1 - \sqrt{12 - 4m}}{2} \Rightarrow \alpha^2 = \left(\frac{1 - \sqrt{12 - 4m}}{2}\right)^2 = \frac{1 - 2\sqrt{12 - 4m} + 12 - 4m}{4} = \frac{13 - 4m - 2\sqrt{12 - 4m}}{4}$$

$$\left. \begin{array}{l} \text{طول رأس ها} \\ \text{میان رأس ها} \end{array} \right\} \alpha(n - x_0)^2 + y_0 \Rightarrow \alpha(n-1)^2 + 9 = \alpha(n^2 - 4n + 4) + 9$$

$$\Rightarrow \alpha n^2 - 4\alpha n + 4\alpha + 9 = \alpha n^2 - 4\alpha n + 4\alpha + 9 \Rightarrow -4\alpha n + 4\alpha + 9 = -4\alpha n + 4\alpha + 9 \Rightarrow -4\alpha n + 4\alpha + 9 = -4\alpha n + 4\alpha + 9$$

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$$\rightarrow -n^2 + 4n + 5 > 0 \rightarrow n^2 - 4n - 5 < 0 \rightarrow \frac{n}{5} \mid \frac{-1}{4} + \frac{5}{4} \rightarrow (-1, 5) \quad \checkmark$$

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$$\alpha + \beta = \frac{V}{2} \quad \alpha \cdot \beta = \frac{9}{4} \rightarrow \alpha^2 = 9 \rightarrow \alpha = \pm 3 \rightarrow -3 \checkmark$$

$$-\alpha + \beta = -\frac{V}{2} \rightarrow -9 + \beta = -\frac{V}{2}$$

$$\boxed{\beta = \frac{V}{2}}$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{1}{3} + \frac{1}{3} = \frac{2}{3} = \frac{V}{4} \checkmark$$

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$$\alpha + \beta = -m$$

$$\alpha \cdot \beta = -\frac{1}{m}$$

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

$$\alpha^2 - m\beta = 1 \rightarrow -m\alpha + \frac{1}{m} - m\beta = -m(\alpha + \beta) + \frac{1}{m} = 1$$

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

$$(m+1)(m-1) = 0$$

$$m = 1 \text{ or } m = -1$$

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$$m = 1 \rightarrow \alpha + \beta = -1 \checkmark$$

$$\frac{\Delta}{4a} = 1 \rightarrow \frac{-(14 - 5m(\frac{m}{2} + 1))}{5m} = 1 \quad \beta = (\frac{m^2}{2} - 1)m = -1m$$

$$\frac{m^2}{2} \cdot 1m + 1m - 1 = 0 \rightarrow m^2 - 2m - 2 = 0$$

$$(m-1)(m+2) = 0$$

$$m = 1 \text{ or } m = -2$$

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$$a < 0 \rightarrow m < 0 \quad \text{II} \xrightarrow{\text{II}} \boxed{m = -2} \rightarrow -5m^2 + 5m + 4 = 0 \rightarrow m_1 = 1, m_2 = -2 \rightarrow \boxed{m = -2} \checkmark$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = 5 \quad \left. \begin{matrix} x_0 = 2 \\ y_0 = 4 \end{matrix} \right\} a(x-2)^2 + 4 = 5 \rightarrow a(x-2)^2 + 4 = 5$$

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$$\rightarrow -\frac{1}{2}(x^2 - 4x + 4) + 4$$

$$\boxed{\alpha = -\frac{1}{2}}$$

$$= -\frac{x^2}{2} + 2x - 2 + 4 = -\frac{x^2}{2} + 2x + 2 \rightarrow \alpha \cdot \beta = \frac{2}{-1/2} = -4 \quad \text{II} \quad \alpha + \beta = \frac{1}{\alpha} = -2$$

$$\boxed{+4}$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = \frac{-2}{-4} = \frac{1}{2} \checkmark$$

$$n = 2 \rightarrow 5 - (5a + 5)x + (5a^2 + 5a + 5) = 0 \rightarrow 5 - 10a + 1 + 5a^2 + 5a + 5 = 0$$

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$$a = 1 \rightarrow x^2 - 10x + 12 = 0 \quad \left\{ \begin{matrix} x = 2 \\ x = 4 \end{matrix} \right.$$

$$= 5a^2 - 5a - 1 = 0$$

$$5a = 1 \rightarrow a = \frac{1}{5} \rightarrow 0 > 0 \checkmark$$

$$5 > 0 \checkmark$$

$$5 = \alpha + \beta = \frac{1}{\alpha} = \frac{1}{2}$$

$$5\alpha + 1 = \frac{1}{2} \rightarrow \boxed{\alpha = \frac{1}{2}} \checkmark$$

$$r\alpha^r + \alpha^r + r\beta^r - \beta^r = 1r \rightarrow r(\alpha^r + \beta^r) + \alpha^r - \beta^r = 1r$$

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$$\frac{\beta > \alpha}{\alpha - \beta < 0} \rightarrow r(S^r - r\rho) + (S) \left(\frac{-\sqrt{\Delta}}{|a|} \right) = 1r$$

$$\frac{S = K}{\rho = \frac{m+r}{r}} \rightarrow r(14 - m - r) - K \left(\frac{\sqrt{K\Lambda - \Lambda m}}{r} \right) = r\Lambda - rm - r\sqrt{K\Lambda - \Lambda m} = 1r$$

$$14 - rm = r\sqrt{K\Lambda - \Lambda m} \rightarrow \boxed{m = K}$$