

$$\frac{-b}{2a} = 2 \rightarrow \frac{-1}{2a-2} = 2 \Rightarrow 2a-2 = -1 \Rightarrow 2a = 3 \Rightarrow a = \frac{3}{2}$$

$$-\frac{1}{2}x^2 + x + 4 = 0 \rightarrow x = \frac{-1 \pm \sqrt{17}}{-1} \Rightarrow \begin{cases} x = -2 \\ x = 4 \end{cases} \Rightarrow \text{طول مساحت} = 4$$

حالت اول: $\Delta > 0 \rightarrow 2a-2 > 0 \rightarrow 2a > 2 \Rightarrow a > 1$ و $\Delta > 0$

$$-\frac{a}{2} < m < \frac{a}{2} \xrightarrow{m=0} -\frac{a}{2} < 0 \Rightarrow \left(-\frac{a}{2}, 0\right)$$

$$S = \frac{4-\sqrt{5}}{4} + \frac{4+\sqrt{5}}{4} = \frac{8}{4} = 2$$

$$P = \left(\frac{4-\sqrt{5}}{4}\right)\left(\frac{4+\sqrt{5}}{4}\right) = \frac{16-5}{16} = \frac{11}{16}$$

$$x^2 - 5x + P = 0 \rightarrow x^2 - 5x + \frac{11}{16} = 0 \xrightarrow{\times 16} 16x^2 - 80x + 11 = 0$$

$$\alpha + \beta = 5 \quad \alpha \cdot \beta = \frac{m+2}{4} \quad 2\alpha^2 + \beta^2 = 14 \rightarrow 2\alpha^2 + \alpha^2 + \beta^2 = 14 \rightarrow 3\alpha^2 + \beta^2 = 14$$

$$14 - 2\left(\frac{m+2}{4}\right) + 16\alpha - m - 2 = 14 \rightarrow 14 + 16\alpha - 2m = 14 \rightarrow 16\alpha - 2m = 0 \Rightarrow 8\alpha = m$$

$$2\alpha^2 - 16\alpha + 8\alpha + 2 = 0 \rightarrow 2\alpha^2 - 8\alpha + 2 = 0 \rightarrow \alpha^2 - 4\alpha + 1 = 0 \Rightarrow (\alpha-1)^2 = 0 \Rightarrow \alpha = 1$$

$$m = 8 \times 1 = 8$$

$$S(2,9) \rightarrow ax^2 + bx + c = y \Rightarrow 4a + 2b + c = 9 \rightarrow 4a + 2b = 9 \rightarrow 2a + b = \frac{9}{2}$$

$$\frac{-b}{2a} = 2 \Rightarrow 2a = -b \Rightarrow b = -2a$$

$$\Rightarrow -2a = 2 \Rightarrow a = -1, b = 2$$

$$y = ax^2 + bx + c \rightarrow y = -x^2 + 2x + 5 \rightarrow x^2 - 2x - 5 = 0$$

$$\frac{-1 \pm \sqrt{1+20}}{2} \Rightarrow (-1, 5)$$

$$\alpha\beta = \frac{9\beta}{\alpha} \rightarrow \alpha = \pm 3$$

$$\alpha + \beta = \frac{V}{\alpha} \begin{cases} \alpha = 3 \Rightarrow \beta = -\frac{1}{3} & \text{OÖE} \\ \alpha = -3 \Rightarrow \beta = \frac{1}{3} & \text{OÖ} \end{cases}$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = -\frac{1}{3} + \frac{3}{1} = \frac{-1+9}{3} = \frac{8}{3}$$

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$$\begin{aligned} \alpha^r + \beta^r - \gamma m &= \Lambda \rightarrow (-m)^r - 3(-\gamma m) - \gamma m = \Lambda \rightarrow m^r + 3\gamma m - \gamma m = m^r + 2\gamma m - \Lambda = 0 \Rightarrow (m+2)(m-1) = 0 \\ m &= -2 \rightarrow \Delta r, \text{ OÖE} \\ m &= 1 \rightarrow \Delta r, \text{ OÖ} \end{aligned}$$

$$(x^r + mx - \gamma m = 0 \rightarrow \beta^r + \beta m - \gamma m = 0 \rightarrow -m\beta = \beta^r - \gamma m)$$

$$\Rightarrow x^r + \gamma x - \gamma = 0$$

$$S = \frac{-b}{a} = \frac{-\gamma}{1} = -\gamma$$

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$$\Delta = 14 - \epsilon(m)(\frac{m}{r} + V) = 14 - \gamma m^r - \gamma \Lambda m$$

$$y_S = \Lambda \rightarrow \frac{-\Delta}{\epsilon a} = \frac{\gamma m^r + \gamma \Lambda m - 14}{\epsilon m} = \frac{m^r + \epsilon m - \Lambda}{\gamma m} = \Lambda \rightarrow 14m = m^r + \epsilon m - \Lambda \Rightarrow m^r - \gamma m - \Lambda = 0$$

$$\begin{aligned} (m-2)(m+1) &= 0 \quad m=2 \quad \text{OÖE (max)} \quad m=-1 \quad \text{OÖ} \\ \Rightarrow f(x) &= -\gamma x^r + \epsilon x + \gamma \rightarrow x^r - \gamma x - \gamma = 0 \\ (x-2)(x+1) &= 0 \\ x &= 2 \quad x = -1 \rightarrow \text{min} \end{aligned}$$

$$K = 10$$

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$$y = ax^r + bx + c$$

$$\frac{-b}{ra} = r \Rightarrow -\epsilon a = b$$

$$c = \epsilon \quad \frac{-b}{ra} = r \quad \frac{-\Delta}{\epsilon a} = 4$$

$$ax^r + bx + c = y \xrightarrow{x=r} \epsilon a + \gamma b + \epsilon = 4 \Rightarrow \gamma a + \gamma b = \gamma \Rightarrow$$

$$\rightarrow -\gamma a = 1 \rightarrow a = -\frac{1}{\gamma} \quad b = -\frac{1}{\gamma}(-\epsilon) = \epsilon \quad \rightarrow y = -\frac{1}{\gamma}x^r + \epsilon x + \epsilon$$

$$\gamma a + \gamma b = 1 \quad -\epsilon a$$

$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha + \beta}{\alpha\beta} = \frac{\epsilon}{-\Lambda} = -\frac{1}{\gamma}$$

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$$x=3 \rightarrow \epsilon - \Lambda a - \Lambda + \gamma a^r + 4a + \gamma = 0 \rightarrow \gamma a^r - \gamma a - 1 = 0 \quad a=1, a=-\frac{1}{\gamma}$$

$$a=1 \rightarrow x^r - \Lambda x + 1 = 0 \Rightarrow (x-2)(x-4) \rightarrow x=2, x=4$$

$$a = -\frac{1}{\gamma} \rightarrow x^r - \frac{\Lambda}{\gamma} x + \frac{\epsilon}{\gamma} = 0 \Rightarrow (x-2)(x-\frac{1}{\gamma}) \rightarrow x=2, x=\frac{1}{\gamma}$$

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