

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

- 1

$$\hookrightarrow -\frac{1}{2}x^2 + x - 2 = 0 \quad \times (-2) \rightarrow x^2 - 2x - 4 = 0 \rightarrow (x-4)(x+1) \rightarrow \begin{cases} x=4 \checkmark \\ x=-1 \times \end{cases}$$

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$$\textcircled{1} m < 0 \quad \textcircled{2} \Delta > 0 \Rightarrow 2a - 4m^2 > 0 \rightarrow 4m^2 < 2a \Rightarrow m < \frac{\sqrt{a}}{2} \rightarrow (-\frac{\sqrt{a}}{2}, \frac{\sqrt{a}}{2})$$

- 2

$$\textcircled{3} 0 \rightarrow -\frac{a}{2} < m < 0 \quad \therefore m \in (-\frac{a}{2}, 0)$$

5

$$x^2 - 5x + p = 0 \Rightarrow S = \frac{5 - \sqrt{5} + 5 + \sqrt{5}}{2} = 5$$

- 3

$$p = \frac{(5 - \sqrt{5})(5 + \sqrt{5})}{2 \times 2} = \frac{9 - 5}{2} = \frac{4}{2} = 2$$

5

$$\hookrightarrow x^2 - 5x + \frac{4}{2} = 0 \quad \times 2 \rightarrow 2x^2 - 10x + 4 = 0$$

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$$S = \frac{-b}{a} = 5 \Rightarrow \alpha + \beta = 5 \quad \text{or} \quad \beta = 5 - \alpha \Rightarrow 3\alpha^2 + (5 - \alpha)^2 = 14$$

- 14

$$\hookrightarrow 4\alpha^2 - 10\alpha + 1 = 0 \quad \times 4 \rightarrow 4\alpha^2 - 10\alpha + 1 = 0 \rightarrow (4\alpha - 1)(\alpha - 1) = 0 \Rightarrow \begin{cases} \alpha = \frac{1}{4} \\ \alpha = 1 \end{cases}$$

1/2

B = 3

$$p = \frac{m+1}{2} = 1 \times 2 \Rightarrow m+1 = 2 \rightarrow m = 1$$

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$$A|_a \in \mathbb{R} \Rightarrow y = a(x-2)^2 + 9 \quad |_{a=0} \rightarrow a = 4a + 9 \Rightarrow a = -1$$

- 14

$$\hookrightarrow y = -1(x^2 + 4 - 4x) + 9 \Rightarrow y = -x^2 + 4x - 4 + 9 \rightarrow y = -x^2 + 4x + 5$$

5

$$\Rightarrow -(x-5)(x+1) = 0 \Rightarrow \begin{cases} x=5 \\ x=-1 \end{cases} \Rightarrow \frac{-1}{-1+1} = \frac{5}{-1+1} \xrightarrow{\text{نقطة } y} (-1, 5)$$

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

- 9

$$S = \frac{-b}{a} = \frac{5}{\alpha} \quad \textcircled{1} \rightarrow \begin{cases} \alpha = 2, 2 + \beta = \frac{5}{2} \Rightarrow \beta = \frac{5}{2} - 2 < 0 \Rightarrow \text{غير مقبول} \\ \alpha = -2, -2 + \beta = \frac{5}{-2} \Rightarrow \beta = \frac{5}{-2} + 2 = \frac{1}{-2} \end{cases}$$

5

$$p = \frac{c}{a} = \frac{9\beta}{\alpha} = \alpha\beta \Rightarrow \alpha^2 = 9 \Rightarrow \alpha = \pm 3 \quad \textcircled{1} \rightarrow \alpha = -3 \checkmark$$

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$$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{1}{3} + \frac{1}{-2} = \frac{-2+3}{-6} = \frac{1}{-6}$$

$$S = -m, p = -Ym / \alpha = \beta \rightarrow \beta^2 + m\beta - Ym = 0 \Rightarrow m\beta = Ym - \beta^2 \quad -V$$

$$\hookrightarrow \alpha^2 - Ym + \beta^2 = \Lambda \rightarrow S^2 - Yp - Ym = \Lambda = 0 \rightarrow S^2 - Yp = Ym + \Lambda$$

$$m^2 + Ym = Ym + \Lambda \rightarrow m^2 + Ym - \Lambda = 0 \rightarrow m = -Y \rightarrow \Delta = 14 \rightarrow X$$

$$m = Y \rightarrow \Delta = Y \rightarrow \checkmark$$

$$\hookrightarrow m = Y \Rightarrow S = -Y \quad (5)$$

$$y_{\max} = \frac{-\Delta}{ka} = \Lambda \rightarrow \frac{Ym^2 + Y\Lambda m - 14}{Ym} = \Lambda \rightarrow Ym^2 - Ym - 14 = 0 \quad -\Lambda$$

$$\hookrightarrow m^2 - Ym - \Lambda = 0 \rightarrow m = Y \rightarrow \Delta = 14 - f(9)(9) < 0 \quad X$$

$$\hookrightarrow m = -Y \rightarrow y = -Yx^2 + Yx + Y \rightarrow x^2 - Yx - Y = 0 \rightarrow x = \frac{1}{Y} \rightarrow x = Y \quad k=Y$$

$$S | Y \Rightarrow y = a(x - Y)^2 + Y \xrightarrow{\text{إيجاد}} Y = Ya + Y \rightarrow a = -\frac{1}{Y} \quad -9$$

$$y = -\frac{1}{Y}(x^2 + Y - Yx) + Y = -\frac{x^2}{Y} + Yx + Y \Rightarrow S = Y, p = -\Lambda \quad (5)$$

$$\frac{1}{a} + \frac{1}{b} = \frac{\alpha + \beta}{\alpha\beta} = \frac{S}{p} = \frac{Y}{-\Lambda} = -\frac{1}{Y}$$

$$15 \quad \alpha = Y \rightarrow Y - \Lambda a = \Lambda + Ya^2 + Ya + Y = 0 \Rightarrow Ya^2 + Ya - \Lambda = 0 \quad -1$$

$$a^2 - Ya - Y = 0 \rightarrow a = 1, a = -\frac{1}{Y} \quad (5)$$

$$\hookrightarrow a = 1 \Rightarrow x^2 = (Y + Y)x + (Y + Y + Y) = x^2 - \Lambda x + 1Y = 0 \Rightarrow x = Y, x = Y$$

$$\hookrightarrow a = -\frac{1}{Y} \Rightarrow x^2 = \left(-\frac{Y}{Y} + Y\right)x + \left(+\frac{Y}{Y} - Y + Y\right) = 0 = x^2 - \frac{\Lambda}{Y}x + \frac{Y}{Y} = 0$$

$$20 \Rightarrow Yx^2 - \Lambda x + Y = 0 \rightarrow x^2 - \Lambda x + 1Y = 0 \Rightarrow x = Y, x = \frac{Y}{Y}$$