

$$x_5 = \frac{b}{ra} = -1 \rightarrow b = -a \rightarrow \begin{cases} x = -1 \rightarrow a - b + c = 9 \rightarrow a - (-a) + c = 9 \rightarrow c - a = 9 \\ x = 3 \rightarrow 9a + 3b + c = 1 \rightarrow 9a + 9(-a) + c = 1 \rightarrow c - 9a = 1 \end{cases} \rightarrow -19a = 8 \rightarrow a = -\frac{8}{19}$$

$$\rightarrow b = 2x \cdot \frac{1}{p} = -1 \rightarrow c + \frac{1}{p} = 9 \rightarrow c = 9 - \frac{1}{p} \rightarrow y = ax^2 + bx + c \rightarrow y = \frac{1}{p}x^2 - x + \frac{11}{p}$$

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دوربین مثبت دارد

$$\Delta > 0 \rightarrow b^2 - 4ac > 0 \rightarrow m^2 - 1m - 4 \Delta > 0 \rightarrow (m+1)(m+4) > 0$$

$$a > 0 \rightarrow r > 0$$

$$\alpha B > 0 \rightarrow p > 0 \rightarrow \frac{c}{a} > 0 \rightarrow \frac{m+4}{r} > 0 \rightarrow \frac{-4}{-p+} \rightarrow m > -4$$

$$\alpha + B > 0 \rightarrow S > 0 \rightarrow \frac{-b}{a} > 0 \rightarrow \frac{-m}{r} > 0 \rightarrow \frac{0}{+p-} \rightarrow m < 0$$

$$\rightarrow -4 < m < 0$$

$$\alpha + B = \frac{1}{\alpha B} \Rightarrow S = \frac{1}{p} \rightarrow \frac{b}{a} = \frac{1}{\frac{c}{a}} \rightarrow \frac{-(r-m)}{r} = \frac{1}{\frac{r-m}{r}} \rightarrow \frac{1-rm}{r} = \frac{r}{r-m}$$

$$\rightarrow r - rm - m + rm^2 = 9 \rightarrow rm^2 - \omega m - 9 = 0 \rightarrow \text{شیع ا و ب برابر باشد}$$

$$\rightarrow \Delta > 0 \rightarrow b^2 - 4ac = 0 \rightarrow (r-m)^2 - 4(r-m) = 9 \rightarrow 16 < 0 \rightarrow 0 < 0$$

$$\rightarrow m = \frac{1}{p} \rightarrow m = \frac{1}{p}$$

$$x^2 - x - 4 = 0 \rightarrow S = -\frac{b}{a} = x_1 + x_2 = 1$$

$$\rho = \frac{c}{a} = x_1 \times x_2 = -4$$

$$S = \alpha + B = x_1 + \frac{1}{x_1} + x_2 + \frac{1}{x_2} = (x_1 + x_2) + (\frac{1}{x_1} + \frac{1}{x_2}) = S - \frac{r}{S\rho} + \frac{x_1 + x_2}{x_1 \times x_2} = 1 + 1 + \frac{1}{-4} = \frac{\omega}{4}$$

$$P = (x_1 + \frac{1}{x_1})(x_2 + \frac{1}{x_2}) = (x_1 \times x_2) + x_1 + x_2 + \frac{1}{x_1 \times x_2} = (-4) + S - \frac{1}{\rho} = -4 + 1 + 1 - \frac{1}{-4} = \frac{r}{4} = \frac{r}{4}$$

$$\rightarrow t^2 - \frac{\omega}{4}t + \frac{r}{4} = 0 \rightarrow (4t^2 - \omega t - r) = 0 \rightarrow (4t^2 - \omega t - r) = 0$$

$$y = \sqrt{x} \rightarrow \sqrt{x^2} = y \rightarrow \frac{1}{\sqrt{x^2}} = \frac{1}{y} \rightarrow (y^2 + \frac{1}{y^2} + 1)(y^2 - 1) = 2y$$

$$\rightarrow y^4 + 1 + y^2 - y^2 - \frac{1}{y^2} - 1 = 2y \rightarrow y^4 - \frac{1}{y^2} = 2y \rightarrow y^6 - 1 = 2y^3 \rightarrow y^6 - 2y^3 - 1 = 0$$

$$\xrightarrow{y^3 = x} x^2 - 2x - 1 = 0 \rightarrow x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{2 \pm \sqrt{4 + 4}}{2} \rightarrow x_1 = 1 + \sqrt{2}$$

$$\rightarrow x_1 + x_2 = 1 + \sqrt{2} + 1 - \sqrt{2} = 2 \rightarrow x_1 + x_2 = 2$$

$$\alpha = \sqrt{B} \rightarrow \alpha B = \sqrt{B}^2 = \frac{C}{a} = \frac{F}{\sqrt{a}} \rightarrow B = \pm \frac{F}{\sqrt{a}}$$

$$\rightarrow \alpha + B = \sqrt{B} = \frac{-b}{a} = \frac{-(a)}{\sqrt{a}} = \frac{a}{\sqrt{a}} \begin{cases} B = \frac{F}{\sqrt{a}} \rightarrow \sqrt{a} \frac{F}{\sqrt{a}} = \frac{a}{\sqrt{a}} \rightarrow a = 1 \\ B = -\frac{F}{\sqrt{a}} \rightarrow \sqrt{a} \frac{-F}{\sqrt{a}} = \frac{a}{\sqrt{a}} \rightarrow a = -1 \end{cases}$$

$$\rightarrow a_2 - a_1 = 1 - (-1) = (19)$$

$$\rightarrow a_2 - a_1 = (19) \quad \checkmark$$

① $a > 0$ ②

③ $x = \frac{-(1+2a)}{a} > 0 \rightarrow -\frac{1+2a}{a} > 0 \rightarrow \frac{1+2a}{a} < 0 \xrightarrow{a > 0} 1+2a < 0 \rightarrow 2a < -1 \rightarrow a < -\frac{1}{2}$ ④

① $\cap$ ③ = $\emptyset$ (لایق مقدار)

(لایق مقدار) $\checkmark$

$$x_5 = \frac{-b}{2a} = \frac{-a}{2} \quad , \quad x_5 = \frac{-b}{2a} = \frac{F}{-2} = -1 \xrightarrow{\text{چون محور تقارن با محور است}} \frac{-a}{2} = -1 \rightarrow a = 2$$

$$a=2 \rightarrow y = x^2 + 2x - 2 \xrightarrow{\text{نقطه اشتراک این دو}} x^2 + 2x - 2 = 1 \rightarrow x^2 + 2x - 3 = 0 \rightarrow (x+3)(x-1) = 0 \rightarrow \begin{cases} x = -3 \\ x = 1 \end{cases}$$

$\rightarrow B: (1, 1) \text{ و } A: (-3, 1)$ (نقطه اشتراک این دو)

$\rightarrow 1 = -1 - 2 + b \rightarrow 1 = -1 - 2 + b \rightarrow b = 1 + 2 + 1 = 4 \rightarrow b = 4$

$\rightarrow \begin{cases} a = 2 \\ b = 4 \end{cases} \rightarrow ab = 2 \times 4 = 8 \rightarrow ab = 8 \quad \checkmark$

$$\alpha + B = \frac{-(1+a)}{2} = \frac{-a}{2} \quad , \quad \alpha B = \frac{C}{a} = \frac{-F}{2} = -1 \quad , \quad \alpha + 0\omega + B + 0\omega = \frac{a}{2} \rightarrow \alpha + B + 1 = \frac{a}{2}$$

$$\rightarrow \alpha + B = \frac{a}{2} - 1 = \frac{a-2}{2} = \frac{-a}{2} \rightarrow a-2 = -a \rightarrow 2a = 2 \rightarrow a = 1 \rightarrow \alpha + B = -\frac{1}{2} \rightarrow \alpha B = -1$$

$$(\alpha + 0\omega)(B + 0\omega) = 0\omega + 0\omega\alpha + \alpha\omega B + \alpha B = 0\omega + \frac{1}{2}(\alpha + B) + \alpha B = \frac{b}{2}$$

$$\rightarrow 0\omega + 0\omega + (-1) = \frac{b}{2} \rightarrow \frac{b}{2} = -1 \rightarrow b = -2$$

$$\rightarrow \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 1 \\ -2 \end{bmatrix} = \begin{bmatrix} -1 \\ 2 \end{bmatrix} = (-2) \quad \checkmark$$

با فرض اینکه این دو نقطه با هم مشترک باشند

$$x^2 + 2x - 2m = x^2 + 9x + m \rightarrow -x = 6m \rightarrow x = -6m$$

$$x = -6m \rightarrow m^2 - 2m - 2m = 0 \rightarrow m^2 - 4m = 0 \rightarrow m(m-4) = 0 \rightarrow \begin{cases} m = 0 \\ m = 4 \end{cases}$$

چون $m=0$ و $m=4$ دو جواب هستند

$$m=0 \rightarrow \begin{cases} x^2 + 9x + m = 0 \rightarrow x^2 + 9x + 0 = 0 \rightarrow (x+9)(x-1) = 0 \rightarrow \begin{cases} x = -9 \\ x = 1 \end{cases} \\ x^2 + 2x - 2m = 0 \rightarrow x^2 + 2x - 0 = 0 \rightarrow (x+2)(x-0) = 0 \rightarrow \begin{cases} x = -2 \\ x = 0 \end{cases} \end{cases}$$

$\rightarrow x = -9$ و $x = 1$ و $x = -2$ و $x = 0$ (چون اینها با هم مشترک نیستند)

$\rightarrow x = -4$ و $x = 3$ (چون اینها با هم مشترک هستند)

$\rightarrow \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} -4 \\ 3 \end{bmatrix} = \begin{bmatrix} 4 \\ -3 \end{bmatrix} = (-7) \quad \checkmark$