

$$\frac{-b}{2a} = 2 \rightarrow \frac{-1}{2a-2} = 2 \Rightarrow 4a = 3, a = \frac{3}{4} \Rightarrow \frac{(a-1)x^2}{a}, a = \frac{3}{4} - 1, a = -\frac{1}{4}$$

$$y = -\frac{1}{4}x^2 + x + 3 \quad \Delta = 1 + 3 = 4, x = \frac{-1 \pm \sqrt{4}}{-\frac{1}{4}}, x = -2, 4$$

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بین درجه سه و بالایی معادله قرار دارد و می توانیم حدس زد که $m < 0 \leq a < 0$ ①

$$\Delta \geq 0 \rightarrow 4\omega - 4m^2 \geq 0 \rightarrow 4m^2 \leq 4\omega, m^2 \leq \frac{4\omega}{4} \Rightarrow -\frac{\omega}{4} \leq m \leq \frac{\omega}{4} \quad ②$$

$$① \cap ② = -\frac{\omega}{4} \leq m \leq 0$$

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$$s = \frac{3 - \sqrt{5} + 3 - \sqrt{5}}{3} = \frac{4}{3} = 2, p = \frac{3 - \sqrt{5}}{3} \times \frac{3 + \sqrt{5}}{3} = \frac{9 - 5}{9} = \frac{4}{9}$$

$$y = x^2 - 2x + \frac{4}{9} \xrightarrow{\times 9} y = 9x^2 - 18x + 4$$

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$$\beta^2 = 12 - 3\alpha^2, \beta = \sqrt{12 - 3\alpha^2} \rightarrow 5 \leq \alpha + \sqrt{12 - 3\alpha^2} = \frac{-\Delta}{-2} = 4 \rightarrow \sqrt{12 - 3\alpha^2} = 4 - \alpha \xrightarrow{\text{مربع}} 12 - 3\alpha^2 = 16 - 8\alpha + \alpha^2$$

$$-4\alpha^2 + 8\alpha - 4 = 0 \quad \Delta = 4^2 - 4 \cdot 4 = 0 \Rightarrow \alpha = \frac{-4 \pm 0}{-8} = 1 \Rightarrow \beta = \alpha \left(\frac{\sqrt{12 - 3\alpha^2}}{\sqrt{4} = 2} \right) \leq \frac{m+2}{2}$$

$$1 \times 3 = \frac{m+2}{2} \Rightarrow m+2=4, m=2$$

$$\beta^2 = 12 - 3 = 9, \beta \leq 3$$

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$$f(2, 9) \rightarrow \frac{-b}{2a} = 2 \rightarrow b = -4a, \frac{-\Delta}{2a} = 9 \rightarrow \frac{4ac - b^2}{4a} = 36a \Rightarrow 14a + b^2 = 0$$

$$(b = -4a \Rightarrow b^2 = 16a^2) \Rightarrow 14a + 16a^2 = 0, 14a(1 + \frac{4}{3}a) = 0, a = 0, -\frac{1}{4} \Rightarrow a = -1, b = -4(-1) = 4$$

$$y = -x^2 + 4x + 5 \Rightarrow \Delta = 16 + 20 = 36, x = \frac{-4 \pm 6}{-2}, x = 5, -1 \rightarrow -1 < x < 5 \quad \text{در این بازه سه بار بالایی معادله قرار دارد.}$$

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$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\beta + \alpha}{\alpha\beta} = \frac{\frac{V}{\alpha}}{\frac{V}{\beta}} = \frac{V}{\alpha\beta}$ $\alpha = \alpha \rightarrow \alpha^3 - V\alpha + 9\beta = 0 \rightarrow 9\beta = V\alpha - \alpha^3, \beta = \frac{V\alpha - \alpha^3}{9}$ $\alpha = \beta \rightarrow \alpha\beta^2 - V\beta + 9\beta = 0 \rightarrow \alpha\beta^2 + 8\beta = 0, \beta(1\beta + 8) = 0, \alpha\beta = -8, \beta = \frac{-8}{\alpha}$ $\beta > 0 \rightarrow \beta \neq 0$ $\beta = \frac{-8}{\alpha} \rightarrow \frac{V\alpha - \alpha^3}{9} = \frac{-8}{\alpha} \rightarrow V\alpha - \alpha^3 = -72 \rightarrow (\alpha^3) - V\alpha - 72 = 0 \rightarrow \Delta = 4 + 72 = 76, \alpha = \frac{V \pm 11}{2} \rightarrow \alpha = 3, -10$ $\beta > 0 \rightarrow \frac{-8}{\alpha} > 0 \Rightarrow \alpha = -8 \rightarrow \frac{1}{\alpha} + \frac{1}{\beta} = \frac{V}{9\beta} = \frac{V}{4}$	6
$\alpha + \beta = -m, \alpha\beta = -Vm$ $\alpha = \alpha \rightarrow \alpha^2 + m\alpha - Vm = 0, \alpha^2 = -m\alpha + Vm$ $\alpha^2 - m\beta = 1 \rightarrow -m\alpha + Vm - m\beta = 1, -m(\alpha - V + \beta) = 1 \Rightarrow -m(-m - V) = 1 \rightarrow m^2 + Vm - 1 = 0 \Rightarrow (m - V)(m + 1)$ $m = -1 \rightarrow \Delta = 14 - 3V, \Delta < 0 \Rightarrow m = V, \alpha^2 + V\alpha - 1 = 0, \Delta = V^2 + 4$ $\text{جميع الجذور} = \frac{-b}{a} = -V$	7
$\frac{-\Delta}{f_a} = 1 \rightarrow f_{ac} - b^2 = 4Va \rightarrow f_{ac} - 3Va = 12, \rightarrow f_{ac} - 12a = 12, ac - 12a = f$ $a(c - 12) = f \rightarrow m(\frac{m}{V} + V - 12) = f \rightarrow \frac{m^2}{V} - m = f, m^2 - Vm - 12 = 0 \rightarrow (m - 12)(m + V) \Rightarrow m = f, -V$ $y = -Vx^2 + fx + 4 \Rightarrow \Delta = 12 + f^2 = 4f, x = \frac{-f \pm 12}{-f} \rightarrow x = \frac{12}{f}, -1$ $K = 3$	8
$y = 0, S(2, 4), C = f$ $\frac{-b}{f_a} = V, b = -fa / \frac{f_{ac} - b^2}{f_a} = 4 \rightarrow f_{ac} - b^2 = 4fa \rightarrow 12a + b^2 = 0 \rightarrow 12a + 14a^2 = 0 \Rightarrow 14a(1 + 12a) = 0$ $Va = -1, a = \frac{-1}{V} \rightarrow y = \frac{-1}{V}x^2 + Vx + f \rightarrow \Delta = 12, x = \frac{-V \pm \sqrt{12}}{-1}, x = V - \sqrt{12}, V + \sqrt{12}$ $\frac{1}{V - \sqrt{12}} + \frac{1}{V + \sqrt{12}} = \frac{V + V}{f - 12} = \frac{-1}{V}$	9
$\alpha = V \rightarrow f - (fa + f)V + (V^2 + Va + 3) = 0$ $f - 12a - 12 + 3Va + 4a + 3 = 0 \rightarrow 3Va - 8a - 9 = 0, \Delta = 14, a = 1, -\frac{1}{3}$ $a = 1 \rightarrow x^2 - 12x + 12 = 0 \rightarrow \Delta = 48 - 48 = 0, x = 6, 6$ $a = -\frac{1}{3} \rightarrow x^2 - \frac{1}{3}x + \frac{f}{3} = 0 \rightarrow \Delta = \frac{1}{9}, x = \frac{1}{6}, \left(\frac{V}{3}\right)$	10