

چون β ریشه است جای α و β قرار دادیم

کدام مرتبه

$$\alpha + \beta = \omega \quad \alpha = \omega - \beta \quad \beta^r = \omega\beta - 2 \quad (1)$$

$$\beta^r = \beta \times \beta = \beta \times (\omega\beta - 2) = \omega\beta^r - 2\beta = \omega(\omega\beta - 2) - 2\beta = 2\omega\beta - 10 - 2\beta = 23\beta - 10$$

$$\beta^r = \beta \times (23\beta - 10) = 23\beta^r - 10\beta = 23(\omega\beta - 2) - 10\beta = 11\omega\beta - 46 - 10\beta = 10\omega\beta - 46$$

$$\beta^\omega = \beta(10\omega\beta - 46) = 10\omega(\omega\beta - 2) - 46\beta = 47\omega\beta - 210$$

$$\frac{4\alpha + \beta^\omega}{\omega\beta^r} = \frac{4(\omega - \beta) + 47\omega\beta - 210}{\omega(\omega\beta - 2)} = \frac{47\omega\beta - 190}{2\omega\beta - 10} = \boxed{19} \checkmark \checkmark \checkmark$$

$$x \rightarrow \frac{3 + (-1, \omega)}{2} = \frac{1, \omega}{2} = 0, 1\omega \quad (2)$$

$$x = 3 \rightarrow -f = 9a + 3b + c$$

$$x = 1, \omega \rightarrow -f = 2, 2\omega a - 1, \omega b + c$$

$$9a - 2, 2\omega a + 3b + 1, \omega b = 0$$

$$9, 7\omega a + 4, \omega b = 0 \rightarrow b = -1, \omega a$$

$$-\frac{b}{a} = -\frac{-1, \omega a}{a} = \boxed{+1, \omega} \checkmark \checkmark \checkmark$$

$$\Delta x = \frac{f}{p} k = \frac{\sqrt{\Delta}}{|a|} = \sqrt{fk^r - 20} \rightarrow \frac{16}{9} k^r = fk^r - 20 \quad \frac{20}{9} k^r = 20 \quad (3)$$

$$k^r = 9 \quad \frac{k^r}{p} = \frac{9}{2} = 4, 5 \quad \left[\frac{9}{2}\right] = \boxed{4} \checkmark \checkmark \checkmark$$

$$x = \frac{3 + (-\omega)}{2} = -1 \rightarrow (-1, \omega)$$

میانگین طول
عمر هاجم برابرند

$$-\frac{b}{2a} = -1 \rightarrow b = 2a \quad s = -\frac{b}{a} = -2$$

$$-\frac{\Delta}{4a} = 1 \rightarrow \frac{4ac - b^r}{4a} = \frac{4ac - 4a^r}{4a} = c - a = 1$$

$$\alpha^r + \beta^r = s^r - 2p = \omega = 5 - 2p \rightarrow p = -\frac{1}{2}$$

$$\text{معدل} \rightarrow x^r + 2x - \frac{1}{2} \rightarrow (0, 9 - \frac{1}{2}) \quad \boxed{y = -\frac{1}{2}} \checkmark$$

کتاب مروری

$$\begin{aligned} -x^2 + \omega x + m &= 0 \\ x^2 - \omega x - m &= 0 \end{aligned} \quad x-1$$

$$\begin{aligned} \alpha + \beta &= \omega \\ \alpha \beta &= -m \end{aligned} \quad \left[\begin{array}{l} \alpha \in \mathbb{R}, \omega \\ \beta \in \mathbb{R}, \omega \end{array} \right] \text{ شرط}$$

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$$\alpha + \beta = \omega < 9 \quad \checkmark$$

$$\alpha \beta = -m < 20, 20 \rightarrow m > -20, 20 \quad \star (1)$$

$$\Delta \rightarrow 2\omega + 4m \geq 0 \rightarrow m \geq -\frac{2\omega}{4} = -9, 20 \quad \star (2)$$

$$\sqrt{\omega + \sqrt{2\omega + 4m}} < 9, \omega \quad \omega + \sqrt{2\omega + 4m} < 9 \quad \sqrt{2\omega + 4m} < 9$$

$$2\omega + 4m < 81 \quad 4m < -9 \quad m < -\frac{9}{4} \quad \star (3)$$

$$(1) \cap (2) \cap (3) \rightarrow -9, 20 < m < -2, 20 \rightarrow -9, -5, -4, -3 \rightarrow \boxed{64} \quad \checkmark \checkmark \checkmark \checkmark$$

$$\text{مقدور باران} \rightarrow x = \frac{-b}{2a} \rightarrow \frac{-12}{2m} = \frac{4}{m}$$

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$$m \times \frac{36}{m^2} - \frac{12}{m} + \omega m - 1 = \frac{36}{m} - \frac{12}{m} + \omega m - 1 = -\frac{36}{m} + \omega m - 1 = 2 \quad \omega m - \frac{36}{m} = 3$$

$$\omega m^2 - 36 = 3m \quad \omega m^2 - 36 - 3m = 0 \quad \Delta = 9 + 4 \times 36 = 135$$

$$m = \frac{3 \pm \sqrt{135}}{2} = \frac{3 \pm \sqrt{135}}{2} = \frac{3 \pm 3\sqrt{15}}{2} = 3 / -2, 4 \rightarrow \text{چون باید حداقل مقدار ۲ باشد پس عدد منق قابل قبول نیست پس ۲، ۴ مقبوض}$$

$$\text{مقدور باران} = \frac{4}{m} = \frac{4}{3} = 2 \rightarrow \boxed{x=2} \quad \checkmark \checkmark \checkmark \checkmark$$

$$\alpha + \beta = -2(a+1)$$

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$$\alpha \beta = 2a - 1 \quad \leftarrow \quad a^2 = 2a - 1 \rightarrow a^2 - 2a + 1 = 0 \rightarrow (a-1)^2 = 0 \rightarrow a = 1$$

$$\frac{\beta}{a} = \frac{a}{\alpha} \rightarrow a^2 = \alpha \beta$$

$$x^2 + 2(1+1)x + 2(1) - 1 = x^2 + 4x + 1 = 0$$

$$x = \frac{-4 \pm \sqrt{16}}{2} = -2 \pm \sqrt{3} \rightarrow \alpha = -2 + \sqrt{3}$$

$$a = 1$$

$$\beta = -2 - \sqrt{3}$$

Parsian

کتاب نامزدی

$$x^2 = t \rightarrow t^2 - vt - d = 0 \quad \text{چون } t \text{ توان ۲ است پس باید مثبت باشد} \quad (1)$$

$$t = \frac{v \pm \sqrt{v^2 + 4d}}{2} = \frac{v \pm \sqrt{49}}{2} \rightarrow \frac{v + \sqrt{49}}{2} > 0 \Rightarrow x = \pm \sqrt{\frac{v + \sqrt{49}}{2}}$$

$$S = 0 \rightarrow \text{ریشه ها برابر} \quad 2p^2 - 3sp + 2s = 2p^2 \quad \sqrt{\frac{v + \sqrt{49}}{2}} \times - \sqrt{\frac{v + \sqrt{49}}{2}} = \frac{-v - \sqrt{49}}{2}$$

$$p^2 = \left(\frac{v + \sqrt{49}}{2}\right)^2 \quad 2p^2 = \frac{(v + \sqrt{49})^2}{2} = \frac{49 + 49 + 14\sqrt{49}}{2} = \frac{111 + 14\sqrt{49}}{2} = \boxed{59 + 7\sqrt{49}}$$

که وقتی به توان ۲ برسد منفی در صورت حذف می شود

$$x = \frac{-b}{2a} = \frac{c}{2k} = \frac{2}{k} \quad (9)$$

$$y = k\left(\frac{2}{k}\right)^2 - 4\left(\frac{2}{k}\right) - 4 = \frac{4}{k} - \frac{8}{k} - 4 = -\frac{4}{k} - 4$$

$$\boxed{y = -\frac{4}{k} - 4} \quad y = -\frac{4}{k} - 4 = -4\left(\frac{2}{k}\right) - 4 = -\frac{8}{k} - 4$$

$$-\frac{4}{k} - 4 = -\frac{8}{k} - 4 \quad \frac{4}{k} = 2 \quad k = 2$$

$$x = \frac{2}{2} = 1 \quad y = -4 - 4 = \boxed{-8}$$

$$-mx^2 + mx + 1 = -m - x \quad \Delta = b^2 - 4ac < 0 \quad (10)$$

$$-mx^2 + (m+1)x + (m+1) = 0 \quad \times -1$$

$$mx^2 - (m+1)x - (m+1) = 0$$

$$\Delta = (m+1)^2 - 4m(-m-1) = (m+1)^2 + 4m(m+1)$$

$$(m+1)(m+1+4m) = (m+1)(5m+1) < 0$$

$m = -1 \quad m = -\frac{1}{5}$

$$-1 < m < -\frac{1}{5}$$

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