

$$\alpha, \beta = \frac{c}{a} = 2 \quad \frac{4\alpha + \beta^2 \times \beta}{\omega \beta^2 \times \beta} = \frac{4\alpha\beta + \beta^3}{\omega \beta^3} = \frac{(1 + \beta^2)\alpha^2}{\omega \beta^3 \times \alpha^2} = \frac{1 + \beta^2 \times \alpha^2 \cdot \beta^2}{\omega \beta^3 \times \alpha^2} = \frac{1 + \alpha^2 + 1\beta^2}{\omega \times 1}$$

$$= \frac{\alpha^2 + \beta^2}{\omega} = \frac{(5^2 - 3 \times 5)}{\omega} = \frac{(-b)^2}{\omega} - 3 \left(\frac{c}{a} \times \frac{-b}{a} \right) = \frac{\omega^2 - 3 \times 2 \times \omega}{\omega} = 2\omega - 6 = 19$$

$$x = \text{مجموع } x \text{ دو نقطه با } y \text{ را} = \frac{-1/\omega + 3}{2} = 0, \quad \forall \omega = \frac{y \text{ دو نقطه با } x}{2}$$

$$\Rightarrow \text{مجموع صفهای تابع} = \text{مجموع } x \text{ دو نقطه با } y \Rightarrow 1, \omega$$

$$|\alpha - \beta| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{4k^2 - 20}}{1} = \frac{4k}{3} \Rightarrow 4k^2 - 20 = \frac{16k^2}{9} \Rightarrow k^2 - \omega = \frac{4k^2}{9} \Rightarrow \frac{\omega}{9} k^2 = \omega$$

$$\Rightarrow k^2 = 9 \Rightarrow \left[\frac{k^2}{2} \right] = \left[\frac{9}{2} \right] = 4$$

$$y = 2\omega a - \omega b + c = 9a + 3b - c \Rightarrow b = 2a$$

$$y_{\text{ext}} = \frac{-\Delta}{f_a} = \frac{-b^2 + 4ac}{f_a} = \frac{-4a^2 + 4ac}{f_a} \Rightarrow -a + c = 1 \Rightarrow c = a + 1$$

$$\alpha^2 + \beta^2 = \omega \Rightarrow 5^2 - 2p = \omega \Rightarrow \left(\frac{-b}{a} \right)^2 - 2 \left(\frac{c}{a} \right) = \omega \Rightarrow \frac{4a^2}{a^2} - 2 \left(\frac{a+1}{a} \right) = \omega$$

$$\Rightarrow 4 - 2 - \frac{2}{a} = \omega \Rightarrow \frac{2}{a} = -3 \Rightarrow a = -\frac{2}{3} \quad x=0 \Rightarrow y=c=a+1 = \frac{-2}{3} + 1 = \frac{1}{3}$$

$$x_1 \left(\frac{9}{2} \right) \Rightarrow \frac{-b + \sqrt{b^2 - 4ac}}{2a} < \frac{9}{2} \Rightarrow \frac{-\omega + \sqrt{2\omega + 4m}}{-2} < \frac{9}{2} = \frac{\sqrt{2\omega + 4m}}{-2} < \frac{4}{2}$$

$$x_2 \left(\frac{9}{2} \right) \Rightarrow \frac{-b - \sqrt{b^2 - 4ac}}{2a} < \frac{9}{2} \Rightarrow \frac{-\omega - \sqrt{2\omega + 4m}}{-2} < \frac{9}{2} \Rightarrow \frac{\sqrt{2\omega + 4m}}{-2} < \frac{4}{2}$$

$$\sqrt{2\omega + 4m} < 4 \Rightarrow 2\omega + 4m < 16 \Rightarrow 4m < -9 \Rightarrow m < -\frac{9}{4} \quad (I)$$

$$\Delta > 0 \Rightarrow b^2 - 4ac > 0 \Rightarrow 2\omega + 4m > 0 \Rightarrow 4m > -2\omega \Rightarrow m > -\frac{\omega}{2} \quad (II)$$

$$(II) \cap (I) \Rightarrow -\frac{\omega}{2} < m < -\frac{9}{4} \Rightarrow m = \{-3, -4, -5, -6\} \Rightarrow \text{صحيح}$$

$$y_{ext} = \frac{-4}{f_a} = 2 \Rightarrow \frac{-(14f - 20m^2 + f_m)}{f_m} = 2 \Rightarrow 20m^2 - f_m + 14f = 14m$$

$$\Rightarrow 20m^2 - 14m + 14f = 0 \xrightarrow{\text{روش رومی}} m^2 - 14m + 20 \times 14f = 0 \Rightarrow (m - 20)(m + 14) = 0 \quad \begin{matrix} m = \frac{20}{20} \\ m = -\frac{14}{20} \end{matrix}$$

$$m = \frac{20}{20} = 1 \Rightarrow \Delta < 0 \quad \checkmark$$

$$\Rightarrow y = 2x^2 - 14x + 14 \text{ ext } \left| \begin{matrix} 2 \\ 2 \end{matrix} \right. \Rightarrow \text{خط قارن} = \boxed{x = 1} \quad \begin{matrix} m = \frac{20}{20} \\ m = -\frac{14}{20} \end{matrix}$$

$$m = -\frac{14}{20} = -0.7 \Rightarrow \Delta > 0 \quad \times$$

2 ✓

$$t_n = \alpha, a, \beta, \dots \Rightarrow \alpha \cdot \beta = a^2$$

$$x^2 + (a+1)x + 2a-1 = 0 \Rightarrow \alpha\beta = \frac{c}{a} = \frac{2a-1}{1} \Rightarrow (a-1)^2 = 0 \Rightarrow \boxed{a-1}$$

شرط وجود دو ریشه برای $a=1$ را بررسی کن.

$$a=1 \Rightarrow a^2 + 2a + 1 = 0 \Rightarrow 4 = 0 \quad \checkmark$$

کلیا

$$x^2 - vx^2 - \omega = 0 \Rightarrow t^2 - vt - \omega = 0 \Rightarrow t = x^2 \rightarrow \frac{v - \sqrt{49 + 19}}{2} \rightarrow \text{منفی است و قابل قبول نیست}$$

$$t = x^2 \rightarrow x_1, x_2 \text{ (ریشه ها)}$$

$$S = x_1 + x_2 = 0 / P = x_1 \cdot x_2 = - (v + \sqrt{49})$$

$$\Rightarrow 2P^2 - 3SP + 2S = 2P^2 = 2 \left(\frac{-v - \sqrt{49}}{2} \right)^2 = 2 \left(\frac{49 + 49 + 14\sqrt{49}}{4} \right)$$

$$= \frac{112 + 14\sqrt{49}}{2} = \boxed{56 + 7\sqrt{49}}$$

✓

$$y = kx^2 - \frac{c}{k}x \quad y = -\frac{c}{k}x - \frac{c}{k} \Rightarrow kx^2 = \frac{c}{k}$$

$$x_{ext} = \frac{-b}{2a} = \frac{\frac{c}{k} - \frac{c}{k}}{2k} \Rightarrow kx^2 = k \times \frac{\frac{c}{k} - \frac{c}{k}}{2k} = \frac{c}{k} = \frac{c}{k} \Rightarrow \frac{c}{k} = \frac{c}{k} \Rightarrow \boxed{k = 2}$$

$$\Rightarrow y = 2x^2 - \frac{c}{2}x - \frac{c}{2} \Rightarrow y_{ext} = \frac{-b}{2a} = \frac{-(14 + \frac{c}{2})}{2} \Rightarrow \frac{-c}{2} = \boxed{-1}$$

2 ✓

9

$$y = -m - x = -mx^2 + m x + 1 \Rightarrow -mx^2 + (m+1)x + 1 + m = 0 \rightarrow \text{معادله جوی می باشد}$$

$$\Rightarrow \Delta < 0 \Rightarrow b^2 - 4ac < 0 \Rightarrow (m+1)^2 - 4(-m)(1+m) < 0 \Rightarrow m^2 + 1 + 4m + 4m^2 + 4m < 0$$

$$\Rightarrow 5m^2 + 9m + 1 < 0$$

$$\hookrightarrow \text{ریشه ها} \rightarrow -1, -\frac{1}{5}$$

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

$$+ \quad 0 \quad - \quad 0 \quad +$$

$$\rightarrow m = \left[-1, -\frac{1}{5}\right] \rightarrow \text{مجموعه عددهای صحیح}$$

10

2 ✓