

$$\alpha + \beta = \Delta \rightarrow \text{میانگین} = \frac{\alpha + \beta}{2}, 2\Delta \quad (-5)$$

$$1) \rightarrow \Delta > 0 \rightarrow (-\omega)^2 - 4(1)(-m) > 0 \rightarrow 4\omega + 4m > 0 \rightarrow m > -\omega = -4, 2\Delta$$

$$2) \rightarrow f\left(\frac{1}{\omega}\right) > 0 \rightarrow (4\omega)^2 - \omega(4, \omega) - m > 0 \rightarrow m < -2, 2\Delta$$

$$\Rightarrow -4, 2\Delta < m < -2, 2\Delta \Rightarrow m \in \{-4, -5, -3, -2\} \quad (2) \checkmark$$

$$\frac{-\Delta}{2a} = \frac{122 - 4(m)(\omega m - 1)}{4m}, \frac{m(\omega m - 1) - 34}{m} = 2 \rightarrow \omega m^2 - m - 34 = 2m \quad (-6)$$

$$\Rightarrow \omega m^2 - 3m - 34 = 0 \rightarrow (m-3)(\omega m + 12) = 0 \rightarrow m = 3, \frac{-12}{\omega} \quad \text{نقطه}$$

نقطه تابع min داراست و بنابراین a باید مثبت باشد.

$$\Rightarrow \text{مقدار} = x = \frac{-b}{2a} = \frac{+12}{4} = +3 \quad (2) \checkmark$$

$$y = 3x^2 - 12x + 12$$

$$\alpha + \beta = -2a - 2, \alpha\beta = 2a - 1 \quad \text{شرط وجود دو ریشه برای } a = 1 \text{ بررسی کنیم} \quad (-7)$$

$$a^2 = \alpha\beta = 2a - 1 \quad \text{اگر } a \text{ و } \alpha \text{ و } \beta \text{ رابطه منطقی باشد پس:}$$

$$\Rightarrow a^2 - 2a + 1 = 0 \rightarrow (a-1)^2 = 0 \Rightarrow (a=1) \quad (1,5)$$

$$a=1 \rightarrow x^2 + 6x + 1 = 0 \rightarrow \Delta > 0$$

$$t = x^2 \rightarrow t^2 - 6t - 5 = 0 \rightarrow \Delta > 0 \rightarrow 49 - 4(-5) = 49 \quad (-8)$$

$$\rightarrow t_1, t_2 = \frac{-b \pm \sqrt{49}}{2a} = \frac{6 \pm \sqrt{49}}{2} \Rightarrow x_1, x_2 = \sqrt{\frac{6 + \sqrt{49}}{2}}, -\sqrt{\frac{6 + \sqrt{49}}{2}}$$

$$\Rightarrow S, x_1 + x_2 = 0$$

$$\Rightarrow P = x_1 \cdot x_2 = -\left(\frac{6 + \sqrt{49}}{2}\right) \quad (2) \checkmark$$

$$\star \Rightarrow 2P^2 - 2SP + 2S = 2P^2 = 2\left(-\left(\frac{6 + \sqrt{49}}{2}\right)\right)^2$$

$$= \frac{49 + 6\sqrt{49}}{2}$$

$$\text{ert} \left| \begin{array}{l} x = \frac{-2}{2k} = -\frac{1}{k} \\ y = k\left(\frac{1}{k}\right)^2 - 4\left(\frac{1}{k}\right) - 9 = -\frac{4}{k} - 9 \end{array} \right. \Rightarrow \left| \begin{array}{l} -\frac{1}{k} \\ -\frac{4}{k} - 9 \end{array} \right. \sim \text{این نقطه روی خط} \\ y = -4x - 4 \quad \text{قرار داده.}$$

$$\Rightarrow -\frac{4}{k} - 9 = -4\left(\frac{1}{k}\right) - 4 \rightarrow \frac{4}{k} = 5 \rightarrow k = \frac{4}{5}$$

$$\Rightarrow y = -\frac{4}{k} - 9 = -10$$

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

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

$$m^2 + 1 + 2m + 4m^2 + 4m = 5m^2 + 6m + 1 = (5m+1)(m+1)$$

$$\Rightarrow (5m+1)(m+1) < 0 \rightarrow -1 < m < -\frac{1}{5}$$

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