

$$x^2 - \omega x + 2 = 0 \rightarrow P = \frac{c}{a} = 2 \quad S = \frac{-b}{a} = \omega$$

$$\frac{4\alpha + \beta^2}{\omega\beta^2} = \frac{(\alpha\beta)^2 + \alpha + \beta^2}{\omega\beta^2} = \frac{(\alpha^3 + \beta^3)}{\omega} = \frac{S^3 - 3SP}{\omega} = \frac{12\omega - 3 \times \omega \times 2}{\omega} = 19$$

۱

* جمع هر دو نقطه هم عرض دو ر تابع برابر عدد ثابتی است $(\frac{-b}{a})$

$$\Rightarrow x_1 + x_2 = -1, \omega + 2 = 1, \omega$$

۲

$$x^2 + 2Kx + \omega = 0 \quad \text{ابتلاز ریشه} = \frac{\sqrt{4K^2 - 20}}{1, 2\omega} = \frac{4}{2} K \Rightarrow 4K^2 - 20 = \frac{16}{9} K^2$$

$$\frac{4K^2}{9} = 20 \Rightarrow K = 9$$

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

۳

طبق نکته سوال ۲ $\rightarrow S = \frac{-b}{a} = -\omega + 2 = -2 \quad \alpha^2 + \beta^2 = \omega \Rightarrow S^2 - 2P = \omega \Rightarrow 4 - 2P = \omega$

$$\Rightarrow P = \frac{c}{a} = -\frac{1}{2} \Rightarrow \alpha = -2c$$

$$\text{عرض از مبدا} = \frac{-\Delta}{2a} = \frac{-(b^2 - 4ac)}{2a} = \frac{-(20 + 4ac)}{2a} = 1 \Rightarrow -a + c = 1$$

$$a = -2c \quad c = \frac{1}{3} \rightarrow \text{پاسخ}$$

۴

ابتدا سهمی را به ازای $m = 0$ بررسی کنیم:

① رأس سهمی کمتر از $\frac{9}{2}$ است ✓

② پس به ازای $x = \frac{9}{2}$ باید y منفی شود تا هر دو ریشه کمتر از $\frac{9}{2}$ باشند.

$$-x^2 + \omega x + m = 0 \quad \text{ext} \left| \frac{\omega}{2} \right|$$

$$\Delta > 0 \Rightarrow 2\omega + 4m > 0 \Rightarrow m > -\frac{2\omega}{4}$$

$$m \in \mathbb{Z} \Rightarrow m \geq -4$$

$$- \left(\frac{9}{2}\right)^2 + \omega \left(\frac{9}{2}\right) + m < 0$$

$$\frac{9}{2} + m < 0 \Rightarrow m < -\frac{9}{2}$$

$$m \in \mathbb{Z} \Rightarrow m \leq -5$$

$$\Rightarrow m = \{-9, -8, -7, -6, -5\}$$

(به ازای هر مقدار صحیح m)

۵

$$\Rightarrow m < -\frac{9}{2}$$

$$m \in \mathbb{Z} \Rightarrow m \leq -5$$

$\min \Rightarrow a > 0 \Rightarrow \ln > 0 \quad \text{ext} \left \frac{b}{ra} \Rightarrow \frac{1r}{rm} = \frac{4}{m} \right.$ $\left(\omega m - r - \frac{r^2}{m} = 0 \right) \times m \quad \omega m - r m - r^2 = 0 \quad m = \begin{cases} \frac{r^2}{\omega} \checkmark \\ -\frac{1r}{\omega} \text{ غير ممكن} \end{cases}$ $\frac{-b}{ra} = \frac{1r}{r \times r} = \boxed{r}$	6
$a^r = \alpha \beta = \rho \Rightarrow a^r = ra - 1 \quad a^r - ra + 1 = 0 \Rightarrow \boxed{a=1}$ $\frac{c}{a} = \frac{ra-1}{1}$ α, a, β بالتعويض	7
$t = x^r \Rightarrow t^r - vt - \omega = 0 \quad t_1 + t_r = -\frac{b}{a} = -v \quad t_1 \times t_r = \frac{c}{a} = -\omega$ $t_1 = \pm x_1 \quad t_r = \pm x_r \quad S = x_1 - x_1 + x_r - x_r = 0$ $t^r - vt - \omega = 0 \Rightarrow t = \begin{cases} \frac{v + \sqrt{v^2 + 4\omega}}{2} \\ \frac{v - \sqrt{v^2 + 4\omega}}{2} \end{cases} \rightarrow x^r = \frac{v + \sqrt{v^2 + 4\omega}}{2} \Rightarrow x = \pm \sqrt{\frac{v + \sqrt{v^2 + 4\omega}}{2}}$ $r p^r - r s p - r s = r p^r = r \times \left(-\frac{v + \sqrt{v^2 + 4\omega}}{2} \times \frac{v - \sqrt{v^2 + 4\omega}}{2} \right)^r = r \times \frac{11\omega + 14\sqrt{v^2 + 4\omega}}{4} = \boxed{\omega + v\sqrt{v^2 + 4\omega}}$	8
$y = kx^r - \frac{r^2}{k} - q \Rightarrow \text{ext} \left \frac{f}{k} \right. \quad y = k \left(\frac{r}{k} \right)^r - \frac{r^2}{k} - q = \left(-\frac{r^2}{k} - q \right)$ $y = -\frac{r^2}{k} - q \rightarrow$ $-\frac{r^2}{k} - q = -r \left(\frac{r}{k} \right) - r \Rightarrow \frac{r}{k} - r = 0 \Rightarrow k = r$ $\frac{U^r}{U^r} = \frac{-\frac{r^2}{k} - q}{-\frac{r^2}{k} - q} = \frac{-\frac{r^2}{r} - q}{-\frac{r^2}{r} - q} = \boxed{-1}$	9
$-m^r + m + 1 = -m - x \Rightarrow -m^r + (m+1)x + 1 + m = 0 \rightarrow \Delta < 0$ $(m+1)^r - r(-m)/(1+m) < 0 \quad \omega m^r + qm + 1 < 0 \quad n = \begin{cases} \frac{f_1}{\omega} \\ -1 \end{cases} \quad \begin{array}{c} -1 \\ + \quad - \quad + \end{array}$ $m = \left(-1, \frac{1}{\omega} \right)$ سؤال منفرد صحيح	10