

A, C, E

موسم: زمستان

A, C, E

(1)

$$m^2 - 9m + 2 = 0$$

$$\alpha, \beta \rightarrow \alpha = \beta$$

$$p = \frac{r}{q} = \beta^r \Rightarrow \beta^r = \frac{r}{q} \rightarrow \beta = \pm \frac{r}{q} \text{ و } \alpha = \pm r$$

$$12 - 2a + 2 = 0 \rightarrow 2a = 14 \rightarrow a = 7$$

$$12 + 2a + 2 = 0 \rightarrow 2a = -14 \rightarrow a = -7$$

$$7 - (1 - 7) = 14$$

$$m^2 - (m+12)m + 12 = 0$$

(2)

$$p = \frac{1}{q} \quad s = \frac{m+12}{q}$$

$$\left\{ \begin{array}{l} \frac{1}{\alpha} \rightarrow \frac{1}{\sqrt{\alpha}} \\ \frac{1}{\beta} \rightarrow \frac{1}{\sqrt{\beta}} \end{array} \right\} \frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = a \quad \text{مطلوبه}$$

$$\frac{1}{\alpha} + \frac{1}{\beta} + \frac{r}{\sqrt{\alpha\beta}} = 2a \rightarrow \frac{q+12}{\alpha\beta} + \frac{r}{\sqrt{\frac{1}{q^2}}} = 2a$$

$$\frac{m+12}{q} + \frac{1}{q} = 2a \rightarrow m+12 = 14$$

$$m = -1$$

$$m^2 + m + 2 = 0 \rightarrow p = \frac{r}{m} = \frac{-2}{-1} = 2$$

$$r_2^r + k r_2^r - 9r_2 - r = 0$$

$$? k = \frac{1}{r_2}$$

(14)

$$\left\{ \begin{array}{l} \alpha + \beta = 1 \\ \alpha\beta = -r \end{array} \right. \rightarrow \beta = \frac{-r}{\alpha}$$

$$\alpha = \frac{-r}{\alpha} = 1 \rightarrow \frac{\alpha^r - r}{\alpha} = 1 \rightarrow \alpha^r - \alpha - r = 0$$

$$(\alpha - r)(\alpha + 1) = 0$$

$$\alpha = r \rightarrow \beta = -1$$

$$r = r \rightarrow r^r + rk - 9r - r = 0$$

$$rk = -1r \rightarrow k = -\frac{1}{r}$$

$$\alpha^r + 4\alpha + a = 0 \rightarrow \alpha^r = -4\alpha - a$$

$$r^r + 4r + a = 0$$

$$\alpha < \beta$$

(15)

$$\alpha + \beta = -4$$

$$\alpha\beta = a$$

$$r\alpha^r + r\beta^r = 1r\sqrt{r} + 1r\sqrt{r}$$

$$\alpha^r + r\alpha^r + r\beta^r = 1r\sqrt{r} + 1r\sqrt{r}$$

$$r(\alpha^r + \beta^r) + \alpha^r = 1r\sqrt{r} + 1r\sqrt{r}$$

$$\alpha^r + \beta^r = (\alpha + \beta)^r - r\alpha\beta = r^4 - ra$$

$$\alpha^r \rightarrow \Delta = r^4 - ra$$

$$\alpha = \frac{-4 \pm \sqrt{r^4 - ra}}{r}$$

$$\alpha^r = \frac{r^4 + r^4 - ra + 1r\sqrt{r^4 - ra}}{r}$$

$$1r\sqrt{r} = \frac{1r\sqrt{r^4 - ra}}{r}$$

$$\frac{\sqrt{r^4 - ra}}{r} = \sqrt{r} \rightarrow \sqrt{r^4 - ra} = \sqrt{r^5}$$

$$r^4 - ra = r^5$$

$$r^4 = ra \rightarrow a = 1$$

$$n^2 - kn - \delta = 0$$

(3)

$$\sqrt{kp^2 - 3sp + 25} = kp^2 = kx \frac{(v + \sqrt{49})^2}{2} = \frac{(v + \sqrt{49})^2}{2}$$

$$t^2 - vt - 2 = 0 \rightarrow \Delta = 49 + 8 = 57 = 49 + 49 + 12\sqrt{49}$$

$$t = \frac{v \pm \sqrt{49}}{2}$$

$$= \frac{118 + 12\sqrt{49}}{2} = (59 + 6\sqrt{49})$$

$$n^2 \rightarrow \frac{v - \sqrt{49}}{2} \times 600$$

$$\frac{v + \sqrt{49}}{2} = n^2 \rightarrow \alpha = \sqrt{\frac{v + \sqrt{49}}{2}} \quad \beta = \sqrt{\frac{v - \sqrt{49}}{2}}$$

$$P = \sqrt{\frac{v + \sqrt{49}}{2}} \times - \sqrt{\frac{v - \sqrt{49}}{2}} = - \sqrt{\frac{(v + \sqrt{49})^2}{2}}$$

$$S = 0$$

$$kn^2 - an + b = 0 \rightarrow \alpha, \beta$$

(4)

$$kan^2 + an - 4 = 0 \rightarrow \alpha + \frac{1}{\beta}$$

$$\left[\frac{ab}{r} \right] = \left[\frac{-3 \times 3}{r} \right] =$$

$$\alpha\beta = \frac{b}{r} \quad \alpha + \beta = \frac{a}{r}$$

$$\alpha + \frac{1}{\beta} + \beta + \frac{1}{\alpha} = \alpha + \beta + 1 = \frac{-a}{ra} = \frac{-1}{r}$$

$$\left[\frac{-9}{r} \right] = (-3) \times \frac{1}{r}$$

$$\alpha + \beta = \frac{-r}{r}$$

$$\frac{a}{r} = \frac{-r}{r} \Rightarrow a = -r$$

$$(\alpha + \frac{1}{\beta})(\beta + \frac{1}{\alpha}) = \alpha\beta + \frac{\alpha}{\beta} + \frac{\beta}{\alpha} + \frac{1}{\alpha\beta} = -r$$

$$\alpha\beta - \frac{r}{r} + \frac{1}{r} = \frac{-4}{ra} = \frac{-4}{-4} = 1$$

$$\frac{b}{r} = 1 + \frac{1}{r}$$

$$\frac{b}{r} = \frac{r}{r} \rightarrow b = r$$

$$n=\beta \rightarrow a\beta^2 - a\beta - b = 0 \rightarrow a(\beta^2 - \beta) = b \rightarrow \beta^2 - \beta = \frac{b}{a}$$

$$a\alpha^2 - a\alpha - b = 0 \rightarrow \alpha\beta = \frac{-b}{a}, \quad \alpha + \beta = \frac{a}{a} = 1$$

$$r_0 \beta^2 + r_0 \alpha^2 - r_0 \beta = 14$$

$$r_0 \beta^2 + r_0 \beta^2 + r_0 \alpha^2 - r_0 \beta = 14$$

$$r_0 (\alpha^2 + \beta^2) + r_0 (\beta^2 - \beta) = 14$$

$$r_0 ((\alpha + \beta)^2 - 2\alpha\beta) + r_0 (\beta^2 - \beta) = 14$$

$$r_0 \left(1 + \frac{2b}{a}\right) + r_0 \left(\frac{b}{a}\right) = 14$$

$$r_0 + \frac{r_0 \cdot b}{a} + \frac{r_0 \cdot b}{a} = 14 \rightarrow \frac{4 \cdot b}{a} = -1 \rightarrow \frac{b}{a} = -\frac{1}{r_0}$$

$$\text{گنجینه} = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{a^2 + 4ab}}{|a|} = \frac{|a| \sqrt{1 + 4 \frac{b}{a}}}{|a|}$$

$$= \sqrt{1 + 4 \frac{b}{a}} = \sqrt{1 + 4 \times \frac{-1}{r_0}} = \sqrt{1 - \frac{4}{r_0}} = \sqrt{\frac{r_0 - 4}{r_0}} = \left(\frac{r_0}{\sqrt{r_0 - 4}}\right) \div b$$

$$n^2 - (a+1)n + a = 0$$

$$\text{جمع ضرایب} = 1 + a - a - 1 = 0 \rightarrow n = 1 \quad \text{نقطه} \quad \downarrow \quad x = a \Rightarrow a = 4$$

$$n^2 - (a+1)n + b = 0$$

$$a = 4 \Rightarrow n^2 - 5n + b = 0$$

$$S = 10 \rightarrow n_1 + n_2 = 10$$

$$r + 4 = 10$$

مجموع ضرایب

اختلاف ضرایب

$$1 \times 3 = 3 \quad \text{دری} \quad 4 \times 4 = 16 \quad \text{دری}$$

$$\text{جواب} = 16 - 3 = 13$$

$$x^2 + x - 1 - m^2 = 0 \quad S = -1 \quad P = -1 - m^2$$

(9)

$$\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta = (-1)^2 - 2(-1 - m^2) =$$

$$1 + 2m^2 + 2 = 2m^2 + 3$$

$$\xrightarrow{m=0} \alpha^2 + \beta^2 = 3$$

$$A(x, y), B(-a, y)$$

(10)

$$\frac{-\Delta}{r_a} = 1$$

$$\alpha^2 + \beta^2 = a \rightarrow (\alpha + \beta)^2 - 2\alpha\beta = a$$

$$am^2 + bx + c = y$$

$$\hookrightarrow 9a + 3b + c = y$$

$$10a - ab + c = y$$

$$\alpha x^2 + \beta x + c = 0$$

$$\alpha + \beta = \frac{-r_a}{a} = -r$$

$$r - 2\alpha\beta = a$$

$$19a - 11b = 0$$

$$2\alpha\beta = -1$$

$$19a = 11b$$

$$\alpha\beta = \frac{-1}{r}$$

$$b = \frac{19}{11}a$$

$$\alpha\beta = \frac{c}{a} = \frac{-1}{r}$$

$$\frac{-(b^2 - 4ac)}{r_a} = \frac{-r_a^2 + 4ac}{r_a} = \frac{r_a(-a + c)}{r_a} = -a + c = 1$$

$$c = 1 + a$$

$$\alpha\beta = \frac{c}{a} = \frac{1+a}{a} = \frac{-1}{r} \rightarrow -a = r_a + r \rightarrow r_a = -r$$

$$\text{بجای } am^2 + bm + a + 1 \rightarrow \frac{-r}{r} + 1 = \frac{1}{r} \rightarrow a = \frac{-r}{r}$$