

①

$$\alpha\beta = 2 \Rightarrow \alpha^2\beta^2 = 4$$

$$\alpha + \beta = 5$$

$$4\alpha + \beta^5 = \alpha^{\frac{4}{5}}\beta^2 + \beta^5 = \beta^2(\alpha^{\frac{4}{5}} + \beta^3)$$

$$\frac{\beta^2(\alpha^{\frac{4}{5}} + \beta^3)}{5\beta^2} = \frac{\alpha^{\frac{4}{5}} + \beta^3}{5} = \frac{4\alpha}{5} = \boxed{19}$$

$$\star \alpha^{\frac{4}{5}} + \beta^3 = 5^{\frac{4}{5}} - 3SP = 125 - (3 \times 2 \times 5) = 45$$

②

$$\begin{vmatrix} 3 & -1.5 \\ -2 & -2 \end{vmatrix}$$

$$\frac{3-1.5}{2} = \frac{1.5}{2} = \frac{3}{4} \rightarrow \text{طول اس سیمی}$$

مجموع ریشه ها

$$\frac{3}{4} \times 2 = \boxed{1.5}$$

نسبت به محور تقاطع قرینه اند

③

$$\frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{\Delta}}{11} = \sqrt{\Delta} = \frac{K}{3}K$$

$$\frac{-2K + \frac{K}{3}K}{2} = \frac{-\frac{2}{3}K}{2} = -\frac{K}{3}$$

$$\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-2K \pm \frac{K}{3}K}{2}$$

$$\frac{-2K - \frac{K}{3}K}{2} = \frac{-\frac{7}{3}K}{2} = -\frac{7}{6}K$$

$$-\frac{K}{3} \times -\frac{7K}{6} = \frac{7K^2}{18} = 5 \Rightarrow K^2 = 9$$

$$\left[\frac{K^2}{2}\right] = \left[\frac{9}{2}\right] = [K, 5] = \boxed{K}$$

④

$$A \begin{vmatrix} 3 \\ y \end{vmatrix} \quad B \begin{vmatrix} -5 \\ y \end{vmatrix}$$

$$\frac{3-5}{2} = -1 \rightarrow \text{طول اس سیمی}$$

$$-1 \times 2 = -2$$

$$S \begin{vmatrix} -1 \\ 1 \end{vmatrix}$$

$$\alpha^2 + \beta^2 = S^2 - 2P = 4 - 2P = 5$$

$$P = \frac{-1}{2}$$

$$\Rightarrow y = a(n+1)^2 + 1 \Rightarrow y = a(n^2 + 2n + 1) + 1 \Rightarrow y = an^2 + 2an + a + 1$$

$$S = \frac{-b}{a} = \frac{-2a}{a} = -2 \quad P = \frac{c}{a} = \frac{a+1}{a} = \frac{-1}{2} \Rightarrow 2a+1 = -a \Rightarrow$$

$$3a = -1 \Rightarrow a = \frac{-1}{3}$$

$$\Rightarrow y = \frac{-1}{3}n^2 - \frac{K}{3}n + \frac{1}{3} \Rightarrow y = \frac{-1}{3}(0)^2 - \frac{K}{3}(0) + \frac{1}{3} \Rightarrow y = \frac{1}{3}$$

$$\boxed{\begin{vmatrix} 0 \\ -1 \\ 3 \end{vmatrix}}$$

$$\sqrt{\Delta} = \sqrt{4d + km} > 0 \Rightarrow 4d + km > 0 \Rightarrow m > -4, 2d *$$

(5)

$$\frac{-d \pm \sqrt{4d + km}}{-r} \rightarrow \frac{-d + \sqrt{4d + km}}{-r} < \frac{q}{r} \quad -\sqrt{4d + km} < r$$

$$\rightarrow \frac{-d - \sqrt{4d + km}}{-r} < \frac{q}{r} \quad \sqrt{4d + km} < r \Rightarrow m < -4, 2d *$$

$$** -4, 2d < m < -4, 2d \Rightarrow m = -r / -k / -d / -4$$

UK

$$r = \frac{-\Delta}{ka} = \frac{-(1kr - k(m)(dm - 1))}{km} = \frac{-(1kr - km^2 + km)}{km} = r$$

(4)

$$km^2 - km - 1m - 1kr = km^2 - 12m - 1kr \xrightarrow{\div k} dm^2 - 12m - 14 = 0$$

$$\rightarrow m^2 - 12m - 14 = 0 \rightarrow (m - 1d)(m + 12) = 0$$

$$n = \frac{-b}{ka} = \frac{-(-12)}{2m} = \frac{4}{m} = \frac{4}{\mu} = 2$$

n=2

min (درست) پس $a > 0$

(V)

$$\alpha \cdot \beta = a^r$$

$$\frac{ra-1}{1} = ra-1 \quad \left\{ \begin{array}{l} ra-1 = a^r \\ a^r - ra + 1 = 0 \end{array} \right. \Rightarrow (a-1)^r = 0$$

$$\rightarrow a=1$$

$$\Delta > 0 \checkmark$$

(A)

$$n^r - Vn^r - d = 0 \xrightarrow{n^r = t} t^r - Vt - d = 0 \Rightarrow \Delta = \sqrt{49 + 16} = \sqrt{65}$$

$$n^r = \frac{V + \sqrt{65}}{2} \quad / \quad n^r \neq \frac{V - \sqrt{65}}{2}$$

n^r منفی باشد

$$n = \pm \sqrt{\frac{V + \sqrt{65}}{2}} \quad \begin{array}{l} \text{جمع} = 5 = 0 \\ \text{ضرب} = \frac{-V - \sqrt{65}}{2} \end{array}$$

$$2p^r - 5p^r + 15 = 2p^r = 2 \left(\frac{-V - \sqrt{65}}{2} \right)^r = \Delta 9 + V \sqrt{65}$$

④ چون گفته شده $k \neq 0$

$$\frac{-b}{ka} = \frac{r}{rk} = \frac{r}{k} \rightarrow y = -r\left(\frac{r}{k}\right) - r = -\frac{1 - rk}{k}$$

$$\frac{-\Delta}{ka} = \frac{-(14 + rk)}{rk} = \frac{-14 - rk}{rk} = \frac{r(-r - 4k)}{rk} = \frac{-r - 4k}{k}$$

$$\frac{-1 - rk}{k} = \frac{-r - 4k}{k} \Rightarrow -1 - rk = -r - 4k$$

$$rk = r \Rightarrow k = 1$$

$$y_s = \frac{-1 - r(1)}{r} = -1 \Rightarrow \boxed{y_s = -1}$$

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همه نقاطی
قطع x

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

$$(m+1)^2 - 4(m+1)(-m) < 0$$

$$m^2 + 4m + 1 < 0$$

$$a + c = b$$

$$\frac{-c}{a} = \frac{-1}{1}$$

$$\begin{array}{c} -1 \quad -\frac{1}{a} \\ \hline + \quad - \quad + \end{array}$$

$$m = (-1, -\frac{1}{a})$$

همه x صحیح