

$$S(h, k) \rightarrow y = a(n-h)r^h + k \xrightarrow{A(-1,1)} y = a(n-(-1))r^1 + 9 \xrightarrow{B(1,1)} 1a(r+1)r^1 + 9$$

$$\rightarrow 1 = 19a + 9 \rightarrow a = -\frac{1}{r} \rightarrow y = -\frac{1}{r}(n+1) + 9$$

$$\Rightarrow y = -\frac{1}{r}n^2 - n + \frac{1}{r} \quad \checkmark$$

درای ریشه سه:

$$2n^2 + mn + m + 9 = 0 \rightarrow \Delta > 0 \rightarrow m^2 - 4(2)(m+9) > 0 \rightarrow (m+2)(m+18) > 0$$

$$1n^2 + mn + 9 \Rightarrow -9 < m < 9$$

$$S > 0 \rightarrow -\frac{b}{a} > 0 \rightarrow -\frac{m}{2} > 0 \rightarrow m < 0$$

$$P > 0 \rightarrow \frac{c}{a} > 0 \rightarrow \frac{m+9}{2} > 0 \rightarrow m > -9$$

مجموعی ریشه حقیقی است

$$p = \frac{r-m}{r}, s = -\frac{r-m-1}{r} = \frac{1-rm}{r}$$

$$\alpha + \beta = \frac{1}{\alpha\beta} \Rightarrow \frac{1-rm}{r} = \frac{r}{1-m} \rightarrow (r-m)(1-rm) = 9$$

$$rm^2 - \Delta m + r = 9 \rightarrow rm^2 - \Delta m - 8 = 0$$

$$(rm-8)(m+1) = 0 \rightarrow m = -1$$

$$x = n^r - 9 \rightarrow n^r - n - 9 = 0 \rightarrow n_1 + n_2 = 1, n_1 \cdot n_2 = -9$$

$$y_1 = n_1^r + \frac{1}{n_1} \rightarrow n_1^r = \Delta n_1 + 9$$

$$y_2 = n_2^r + \frac{1}{n_2} \rightarrow n_2^r = \Delta n_2 + 9$$

$$y_1 + y_2 = \Delta n_1 + \Delta n_2 + \frac{1}{n_1} + \frac{1}{n_2} + 18 \rightarrow y_1 + y_2 = \Delta + 18 - \frac{1}{9} = \frac{\Delta}{9}$$

$$y_1 \cdot y_2 = (n_1^r + \frac{1}{n_1})(n_2^r + \frac{1}{n_2}) = n_1^r n_2^r + \frac{n_1^r}{n_2} + \frac{n_2^r}{n_1} + \frac{1}{n_1 n_2} \Rightarrow y_1 \cdot y_2 = -\frac{r+1}{r}$$

توابع

$$(t^r + \frac{1}{t^r} + 1)(t^r - 1) = t^r - \frac{1}{t^r} \rightarrow t^r - \frac{1}{t^r} = r t \rightarrow t^r - 1 = r t^r$$

$$S = -\frac{r}{1} = r \quad \checkmark$$

$$t^r + r t^r - 1 = 0$$

$$3m^2 - am + c = 0 \rightarrow \text{یک ریشه ۳ برابر ریشه دیگر} \rightarrow \alpha = 3\beta \rightarrow \alpha - \beta = \frac{\alpha}{\beta} \rightarrow \alpha = 3\beta \rightarrow \beta = \frac{\alpha}{3}$$

$$\alpha + \beta = \frac{1}{3} \Rightarrow \alpha + \frac{\alpha}{3} = \frac{1}{3} \Rightarrow \frac{4\alpha}{3} = \frac{1}{3} \Rightarrow \alpha = \frac{1}{4}$$

$$\alpha + \beta = -\frac{1}{3} \Rightarrow \alpha + \frac{\alpha}{3} = -\frac{1}{3} \Rightarrow \frac{4\alpha}{3} = -\frac{1}{3} \Rightarrow \alpha = -\frac{1}{4}$$

$$\alpha = 3(\alpha + \beta) = \pm 1$$

$$\left. \begin{matrix} a_1 = 1 \\ a_2 = -1 \end{matrix} \right\} \text{اقلات شیه} = 16 \checkmark$$

ازای جنیهتا، a سهی $y = am^2 + (r+2a)m$ ریشه ۳ رند



$\alpha, \beta \rightarrow -\frac{r+2a}{a} > 0$

$\frac{r+2a}{a} < 0 \rightarrow -\frac{r}{a} < a < 0$

مثبت و منفی $\rightarrow$ ریشه ها مثبت و منفی $\rightarrow$ ریشه ها مثبت و منفی

$\alpha \cap \beta = \emptyset \rightarrow a$ هیهتا

$\alpha_1 = -\frac{a}{r}$
 $\alpha_2 = -\frac{r}{-r} = 1$
 $\alpha_1 = \alpha_2 \rightarrow -\frac{a}{r} = 1 \rightarrow a = -r$

$y = am^2 + am - r \xrightarrow{\delta=1} am^2 + am - r = 1$
 $am^2 + am - r = 0$
 $(m+2)(m-1) = 0 \rightarrow m = -2$

$y_1 = am^2 + am - r$
 $y_2 = -am^2 - am + b$
 $y = -am^2 - am + b$
 $1 = -(1)^2 - r(1) + b \rightarrow b = r$
 $ab = r \times r = 1 \checkmark$

$3m^2 - am + b = 0$
 $ra m^2 + am - 4 = 0$

$\alpha - \beta = \alpha' + \beta' + 1 \rightarrow \frac{\alpha}{r} = \frac{-\alpha}{ra} + 1 = \frac{1}{r} \Rightarrow \alpha = 1$

$s_1 = \frac{a}{r} = \frac{1}{r}$
 $s_2 = -\frac{1}{r}$
 $p = \frac{b}{r}$
 $p_2 = -\frac{r}{a} = -r$

$(\alpha + \frac{1}{r})(\beta + \frac{1}{r}) = p_2 + \frac{1}{r}s_2 + \frac{1}{r}$
 $\rightarrow \frac{b}{r} - r + \frac{1}{r}(-\frac{1}{r}) + \frac{1}{r} = -r - \frac{1}{r} + \frac{1}{r} = -r \Rightarrow b = -r$

$[ab] = [\frac{1 \times (-r)}{r}] = [-1]$

$y_1 = m^2 + 7m + m = 0$
 $y_2 = m^2 + 2m - 2m = 0$

$\alpha = -m$

$m^2 + 7m + m = m^2 + 2m - 2m \rightarrow 7m + 6m = 0 \rightarrow m = -m \rightarrow \alpha = -m$

$(-m)^2 + 7(-m) + m = 0 \rightarrow m^2 - 6m = 0 \rightarrow m = 0 \vee m = 6 \checkmark$

$y_1 = m^2 + 7m + m = 0$
 $y_2 = m^2 + 2m - 2m = 0$
 $m = -1 \rightarrow \alpha = -(-1) = 1$