

کتاب

A

محل

$$x^r - \alpha x + r = 0$$

$$\alpha + \beta = \omega, \alpha\beta = r$$

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

$$\beta^r = 1 \cdot \omega\beta - r$$

$$\beta^r = r\omega\beta - r$$

$$r\alpha + \beta^r = r(\alpha - \beta) + r\omega\beta - r = r\omega\beta - 1$$

$$\omega\beta^r = r\omega\beta - 1$$

$$\frac{r\alpha + \beta^r}{\omega\beta^r} = \frac{r\omega\beta - 1}{r\omega\beta - 1} = 1$$

$$x_{\text{opt}} = \frac{r + (-1/\omega)}{r} = \frac{1/\omega}{r} = \frac{r}{r}$$

$$\text{ext} \left| \begin{array}{l} -\frac{b}{r\alpha} = \frac{r}{r} \\ y = -\frac{\Delta}{r\alpha} \end{array} \right.$$

$$-\frac{b}{r\alpha} = \frac{r}{r} \times r = \frac{r}{r}$$

$$|\alpha - \beta| = \frac{\sqrt{b^r - r\alpha c}}{|\alpha|}$$

$$|\alpha - \beta| = \sqrt{(rk^r) - r} = \sqrt{rk^r - r} = \frac{r}{r} k$$

$$r\omega\beta^r = rk^r - r = \frac{14}{9} k^r$$

$$rk^r - 1 = 14k^r$$

$$r \cdot k^r = 1 \quad k^r = 9$$

$$\frac{k^r}{r} = \frac{9}{r} \quad \left[\frac{k^r}{r} \right] = \left[\frac{9}{r} \right] = 9$$

$$x_{\text{opt}} = \frac{r + (-\omega)}{r} = -1$$

$$\alpha + \beta = r x_{\text{opt}} = -r$$

$$\alpha^r + \beta^r = (\alpha + \beta)^r - r\alpha\beta = \omega$$

$$(-r)^r - r\alpha\beta = \omega$$

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

$$x^r - (\alpha + \beta)x + \alpha\beta = 0$$

$$x^r - (-r)x - \frac{1}{r} = 0$$

$$x^r + rx - \frac{1}{r} = 0$$

$$x = \frac{-r \pm \sqrt{r^r - r \times (-1/r)}}{r} = \frac{-r \pm \sqrt{r}}{r} = -1 \pm \frac{\sqrt{r}}{r}$$

$$\alpha = -1 + \frac{\sqrt{r}}{r} \quad \beta = -1 - \frac{\sqrt{r}}{r}$$

$$\Delta = (-\omega)^r - r \times 1 \times (-m) = r\omega + rm \geq 0 \rightarrow m \geq -\frac{r\omega}{r}$$

$$x_{\text{max}} = \frac{\omega + \sqrt{r\omega + rm}}{r} < \frac{9}{r}$$

$$\omega + \sqrt{r\omega + rm} < 9$$

$$\sqrt{r\omega + rm} < 9$$

$$r\omega + rm < 81 \quad rm < 9 \quad m < -\frac{9}{r}$$

$$\rightarrow -\frac{r\omega}{r} \leq m < -\frac{9}{r} \rightarrow m = -4, -\omega, -9, -r$$

$$y = mx^r - rx + (\omega m - 1)$$

$$x_{\text{opt}} = -\frac{b}{r\alpha} = -\frac{-1r}{rm} = \frac{1r}{rm} = \frac{1}{m}$$

$$y_{\text{min}} = m\left(\frac{1}{m}\right)^r - r \times \frac{1}{m} + (\omega m - 1) = r$$

$$m \times \frac{r^r}{m^r} - \frac{r}{m} + \omega m - 1 =$$

$$\frac{r^r - r}{m} + \omega m - 1 = \frac{r^r}{m} + \omega m - 1 = r$$

$$\omega m^r - r^r = rm \rightarrow \omega m^r - rm - r^r = 0$$

$$m = \frac{r \pm \sqrt{r^r + r^r}}{1} = \frac{r \pm \sqrt{r^r}}{1} = \frac{r \pm r}{1}$$

$$m = \frac{r}{1} = r$$

$$m = \frac{-r}{1} = -\frac{r}{\omega}$$

$$x = \frac{1}{m} \begin{cases} m = r \rightarrow x = \frac{1}{r} \\ m = -\frac{r}{\omega} \rightarrow x = -\frac{\omega}{r} \end{cases}$$

$$x^r + r(\alpha+1)x + (ra-1) = 0$$

$$\alpha, \alpha, \beta : \text{arbitrary} \rightarrow \alpha\beta = \alpha^r, \alpha\beta = ra-1$$

$$\alpha^r = ra-1 \rightarrow \alpha^r - ra + 1 = 0$$

$$(a-1)^r = 0 \rightarrow a=1$$

$$x^r - vx^r - a = 0 \xrightarrow{y=x^r} y^r - vy - a = 0$$

$$x_1 = \sqrt[r]{\frac{v+\sqrt{4a}}{r}}, x_2 = \sqrt[r]{\frac{v+\sqrt{4a}}{r}}$$

$$S = x_1 + x_2 = 0$$

$$P = x_1 x_2 = -\frac{v+\sqrt{4a}}{r}$$

$$y = \frac{v \pm \sqrt{4a}}{r} = \frac{v \pm \sqrt{4a}}{r}$$

$$r p^r - r p + r s^0$$

$$r p^r = r \left(-\left(\frac{v+\sqrt{4a}}{r} \right)^r \right) = r \left(\frac{(v+\sqrt{4a})^r}{r^r} \right) = \frac{(v+\sqrt{4a})^r}{r}$$

$$y_1 = \frac{v+\sqrt{4a}}{r} \rightarrow x = \pm \sqrt[r]{y_1}$$

$$y_2 = \frac{v-\sqrt{4a}}{r} \rightarrow x$$

$$-mx^r + mx + 1 = -m - x$$

$$-mx^r + mx + 1 + m + x = 0$$

$$-mx^r + (m+1)x + (m+1) = 0$$

$$-mx^r + (m+1)(x+1)$$

$$\Delta r = 0 \rightarrow \Delta = (m+1)^r - r(-m)(m+1) = (m+1)^r + rm(m+1)$$

$$= (m+1)(1+m+rm) = (m+1)(m\alpha + 1)$$

$$(m+1)(\alpha m + 1) < 0$$

$$m = -1 \quad m = -\frac{1}{\alpha}$$

$$\begin{array}{c|c|c} -1 & -\frac{1}{\alpha} & \\ \hline + & - & + \end{array}$$

این روش را برای معادله‌های دیگر نیز می‌توان استفاده کرد.

$$y = kx^r - cx - 4$$

$$x = \frac{-b}{ra} = -\frac{-r}{rk} = \frac{r}{rk} = \frac{1}{k}$$

$$y = -cx - 4$$

$$y_{\text{نسب}} = k \left(\frac{r}{k} \right)^r - cx \frac{r}{k} - 4 = k x \frac{r}{k^r} - cx \frac{r}{k} - 4$$

$$= \frac{r}{k} - \frac{r}{k} - 4 = -\frac{r}{k} - 4$$

$$y_{\text{نسب}} = -kx_{\text{نسب}} = -cx \frac{r}{k} - 4 = -\frac{r}{k} - 4$$

$$-\frac{r}{k} - 4 = -\frac{r}{k} - 4 \rightarrow \frac{r}{k} = r \quad k = r$$

$$y_{\text{نسب}} = -\frac{r}{r} - 4 = -1 - 4 = -5$$