이차방정식의 근과 계수의 관계 (Vieta's Formula in Quadratic Equations)





Let



Let α



Let α , β



Let α , β be the roots





$$ax^2 + bx + c = 0$$



$$ax^2 + bx + c = 0 \ (a \neq 0)$$



Let α , β be the roots of the equation.

$$ax^2 + bx + c = 0 \ (a \neq 0)$$

 α



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha$$
 +



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha + \beta$$



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha + \beta =$$



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha + \beta = -\frac{b}{a}$$



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha + \beta = -\frac{b}{a} ,$$



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha + \beta = -\frac{b}{a} , \alpha$$



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha + \beta = -\frac{b}{a} , \alpha \beta$$



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha + \beta = -\frac{b}{a}$$
, $\alpha\beta =$



$$ax^2 + bx + c = 0 \ (a \neq 0)$$

$$\alpha + \beta = -\frac{b}{a}$$
, $\alpha\beta = \frac{c}{a}$







$$\left\{ \begin{array}{lcl} (x-\alpha)(x-\beta) & = & 0 \end{array} \right.$$





$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \end{cases}$$



$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

Home Start End
$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2+bx+c &= 0 \quad (a\neq 0) \end{cases}$$

Home Start End
$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2+bx+c &= 0 \quad (a\neq 0) \end{cases}$$

$$\begin{cases} (x - \alpha)(x - \beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$
$$\begin{cases} x^2 - \frac{1}{2} & -\frac{1}{2} \end{cases}$$

$$\begin{cases} (x - \alpha)(x - \beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) \end{cases}$$



▶ Start ▶ <u>End</u>

$$\begin{cases} (x - \alpha)(x - \beta) &= 0 \\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x \end{cases}$$

▶ Home ▶ Start

▶ Start ▶ End

$$\begin{cases} (x - \alpha)(x - \beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \beta \end{cases}$$

► Home ► Start ► End

$$\begin{cases} (x - \alpha)(x - \beta) &= 0 \\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \alpha\beta \end{cases}$$



$$\begin{cases} (x - \alpha)(x - \beta) &= 0 \\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0 \end{cases}$$

▶ Start ▶ End

$$\begin{cases} (x - \alpha)(x - \beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \alpha\beta &= 0 \end{cases}$$

▶ Start ▶ End

$$\begin{cases} (x - \alpha)(x - \beta) &= 0 \\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0 \\ x^2 \end{cases}$$

▶ Start ▶ End

$$\begin{cases} (x - \alpha)(x - \beta) &= 0 \\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0 \\ x^2 + \alpha\beta &= 0 \end{cases}$$

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \alpha\beta &= 0\\ x^2 + \frac{b}{a} \end{cases}$$

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \alpha \beta &= 0\\ x^2 + \frac{b}{a} x \end{cases}$$

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \alpha\beta &= 0\\ x^2 + \frac{b}{a} x + \frac{b}{a} \end{cases}$$

▶ Start ▶ <u>End</u>

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \alpha \beta &= 0\\ x^2 + \frac{b}{a} x + \frac{c}{a} \end{cases}$$

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \alpha \beta &= 0\\ x^2 + \frac{b}{a} x + \frac{c}{a} &= \end{cases}$$

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0\\ x^2 + \frac{b}{a}x + \frac{c}{a} &= 0 \end{cases}$$

$$\begin{cases} (x-\alpha)(x-\beta) = 0 \\ ax^2 + bx + c = 0 & (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta) x + \alpha \beta = 0 \\ x^2 + \frac{b}{a} x + \frac{c}{a} = 0 \end{cases}$$



$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0\\ x^2 + \frac{b}{a}x + \frac{c}{a} &= 0 \end{cases}$$

$$\begin{cases} \alpha + \beta \end{cases}$$

▶ Start ▶ End

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0\\ x^2 + \frac{b}{a}x + \frac{c}{a} &= 0 \end{cases}$$

$$\begin{cases} \alpha + \beta &= \end{cases}$$

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0\\ x^2 + \frac{b}{a}x + \frac{c}{a} &= 0 \end{cases}$$

$$\begin{cases} \alpha + \beta &= -\frac{b}{a} \end{cases}$$

▶ Start ▶ End

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0\\ x^2 + \frac{b}{a}x + \frac{c}{a} &= 0 \end{cases}$$

$$\begin{cases} \alpha + \beta &= -\frac{b}{a} \end{cases}$$

$$\alpha\beta$$

$$\begin{cases} (x-\alpha)(x-\beta) &= 0\\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0\\ x^2 + \frac{b}{a}x + \frac{c}{a} &= 0 \end{cases}$$

$$\begin{cases} \alpha + \beta &= -\frac{b}{a} \end{cases}$$

$$\alpha\beta &= 0$$

▶ Start ▶ End

$$\begin{cases} (x - \alpha)(x - \beta) &= 0 \\ ax^2 + bx + c &= 0 \quad (a \neq 0) \end{cases}$$

$$\begin{cases} x^2 - (\alpha + \beta)x + \alpha\beta &= 0 \\ x^2 + \frac{b}{a}x + \frac{c}{a} &= 0 \end{cases}$$

$$\begin{cases} \alpha + \beta &= -\frac{b}{a} \\ \alpha\beta &= \frac{c}{a} \end{cases}$$

Github:

https://min7014.github.io/math20210204001.html

Click or paste URL into the URL search bar, and you can see a picture moving.