POLYNOMIALS

Factoring turns a sum into a product

The same polynomial in two forms. The factored form shows what the expanded form hides.

BEFORE

Expanded form

$$x^2 - 5x + 6$$

One sum: the structure is hidden

FACTOR

Multiplying back gives $x^2 - 5x + 6$

AFTER

Factored form

$$(x - 2)(x - 3)$$

Each factor $(x - r)$ names a root at $x = r$

WHAT CHANGED

A single sum became a product of lower-degree polynomials.

WHAT STAYED

The polynomial itself: multiplying the factors back confirms the result.