

Common Factors

We can expand the idea of the Greatest Common Factor, that is studied in earlier classes into the world of algebra. We will be looking for the common factors in algebraic expressions.

Look at $30x^2$ and $42x^3$. We can factor them individually.

$$30x^2 = 2 * 3 * 5 * x * x$$

$$42x^3 = 2 * 3 * 7 * x * x * x$$

Each term has a 2, a 3, and 2-x's so they have $2 * 3 * x * x = 6x^2$ in common

$$30x^2 = 6x^2(5)$$

$$42x^3 = 6x^2(7x)$$

Example:

Find the common factors for $15x^3y^3$, $6x^2y^3$ and $9xy^4$

First look at the coefficients 15, 6, and 9

The common factor of 15, 6, and 9 is 3

Look at the x variables

The exponents on x are 3, 2, and 1 choose the lowest number, $x^1 = x$ is the common x term

Look at the y variable

The exponents of y are 3, 3, and 4 choose the lowest number, x^3 is the common term.

Therefore the common term is $3xy^3$

$$15x^3y^3 = 3xy^3(5x^2)$$

$$6x^2y^3 = 3xy^3(2x)$$

$$9xy^4 = 3xy^3(3y)$$