

Factoring Out the GCF

9th Grade

The first thing to try, every single time, before anything else.

Find the largest factor common to every term and take it outside a bracket.

$$6x^2 + 9x = 3x(2x + 3)$$

$$6x^2 + 9x$$

3 divides both; x is in both.

$$3x(2x + 3)$$

$$4x^3 - 8x^2$$

Take the highest power common to all.

$$4x^2(x - 2)$$

$$5x + 10$$

Numbers only — no variable in common.

$$5(x + 2)$$

$$x^2 + x$$

Do not lose the 1. $x \div x = 1$, not 0.

$$x(x + 1)$$

THE COMMON MISTAKE

✗ $x^2 + x = x(x)$

✓ $x^2 + x = x(x + 1)$

Dividing x by x gives 1, not nothing. Check by expanding back.

Always expand your answer to check. It takes three seconds and catches everything.