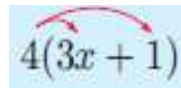


Factoring Algebraic Expressions

- The distributive property can be used to factor and expand linear expressions.
- Factoring an expression is the opposite of expanding it.
- Expanding an expression means removing the parenthesis or grouping symbols from it.
- Each expanded expression can be factored by removing the Greatest Common Factor (GCF) from each term.
 - ✓ Divide each term by the GCF
 - ✓ Use parentheses to show what has been factored out

For example, to expand the expression $4(3x + 1)$,


$$4(3x + 1)$$

- ✓ You must first multiply $4 \cdot 3x$ and then add it to $4 \cdot 1$. The expanded expression is $12x + 4$.

For example, to factor the terms $5y + 20$

- ✓ Find the GCF of $5y$ and 20 .
- ✓ Both terms have a common factor of 5 .
- ✓ 5 can be factored from $5y + 20$.
- ✓ Therefore, $5y + 20 = 5(y + 4)$. **Note:** We use parentheses to show what has been factored out

Some key things to remember

Factor: a number that divides evenly into another number

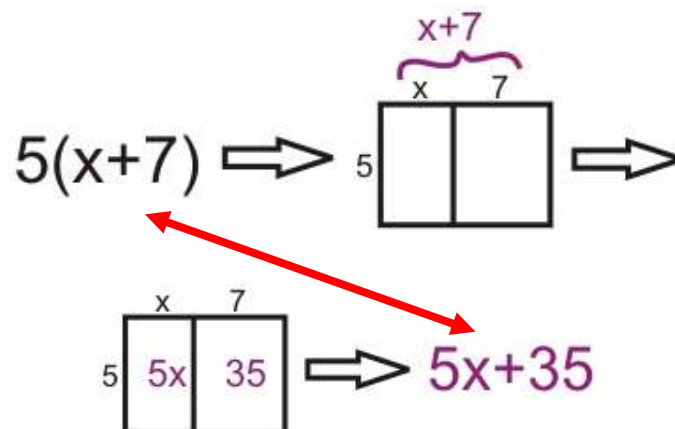
Greatest Common Factor (GCF): the largest number common to two or more terms


The GCF of an expression can be a variable, a whole number, or both variable(s) and whole number, but it **CANNOT BE A FRACTION OR A DECIMAL**

When you factor, you're taking a mathematical expression and breaking it into its basic parts by finding factors. Factors are the terms that multiply together to give you the expression.

You factor so you can learn what mathematical expressions are made of.

Factoring Using Area




$$5(x + 7) = 5x + 35$$

EXPANDING

OR

$$5x + 35 = 5(x + 7)$$

FACTORIZING