

- The <u>distributive property</u> can be used to <u>factor</u> and <u>expand</u> linear expressions.
- Factoring an expression is the opposite of expanding it.
- <u>Expanding</u> an expression means <u>removing the parenthesis or</u> <u>grouping symbols</u> from it.
- Each expanded expression can be factored by removing the <u>Greatest Common Factor</u> (GCF) from each term.
  - ✓ **<u>Divide</u>** 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.
- $\checkmark$  Both terms have a common factor of 5.
- $\checkmark$  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

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

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

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

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

## **Factoring Using Area**

