



## Evaluating Algebraic Expressions

To **evaluate** an expression, replace each variable with a given value, then simplify.

### Example:

Evaluate the expression  $3x + 2y$  when  $x = 10$  and  $y = 3$ .

$$\begin{aligned} 3x + 2y &= 3(10) + 2(3) \\ &= 30 + 6 \\ &= 36 \end{aligned}$$

Remember the order of operations:

1. Simplify within grouping symbols
2. Apply exponents
3. Multiply/divide
4. Add/subtract

Evaluate the following expressions when  $x = 10$  and  $y = 3$ .



1.  $2x - 3y$

4.  $\frac{x^2}{y + 1}$

2.  $x^2 - y^2$

5.  $2x^2y$

3.  $(x + y)^2$

6.  $3(x + y)$

## Terms and Factors

When numbers are added or subtracted they are called **terms**.

**Example:**  $3 + 5$  has two terms: 3 and 5.

**Terms** of algebraic expressions are added, that is, they are separated by an addition sign. Each term may be a number, a variable, or a product or quotient of numbers and variables.

**Example:**  $2 + x + 4y + xyz$  has four terms: 2,  $x$ ,  $4y$ , and  $xyz$ .

Two or more quantities that are multiplied together are called **factors**.

**Example:**  $2(3)(5) = 30$ , so 2, 3, and 5 are factors of 30.

Two or more algebraic expressions that are multiplied together are also called **factors**.

**Example:**  $ab(2c + 1)$  has three factors:  $a$ ,  $b$ , and  $(2c + 1)$ .

### EXAMPLE

1.  $5x + 4z$  has two terms,  $5x$  and  $4z$ .

5 and  $x$  are factors of the term  $5x$ .

4 and  $z$  are factors of the term  $4z$ .



2.  $3x + 2yz$  has two terms,  $3x$  and  $2yz$ .

\_\_\_\_\_ and \_\_\_\_\_ are factors of the term  $3x$ .

\_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ are factors of the term  $2yz$ .

Be carefull  
 $x$  and  $z$  are not factors  
of  $3x + 2yz$ .

3.  $5x - 2z$  has two terms,  $5x$  and  $(-2z)$ .

\_\_\_\_\_ and \_\_\_\_\_ are factors of the term  $5x$ .

\_\_\_\_\_ and \_\_\_\_\_ are factors of the term  $(-2z)$ .

The negative sign is included  
as part of the term because  
 $5x - 2z = 5x + (-2z)$ .

## Practice Identifying Terms and Factors



Complete the following for each algebraic expression:

EXAMPLE 1.  $2a + 4ab + 5a(b + c)$

a. Circle the terms:  $(2a) + (4ab) + (5a(b + c))$

b. What are the factors of the third term in the expression?

The factors of  $5a(b + c)$  are 5, a, and  $(b + c)$ .



2.  $4x - 5yz$

a. Circle the terms:  $4x - 5yz$

$4x - 5yz$  is the same as  $4x + (-5yz)$ .

b. What are the factors of the second term in the expression?

3.  $9\frac{w}{k} + wk + j$

a. Circle the terms:  $9\frac{w}{k} + wk + j$

b. What are the factors of the second term in the expression?