

# Algebraic Expressions and Terms

Unit 1



# Expressions

You are familiar with the following type of **numerical expressions**:

$$12 + 6$$

$$3 (12)$$

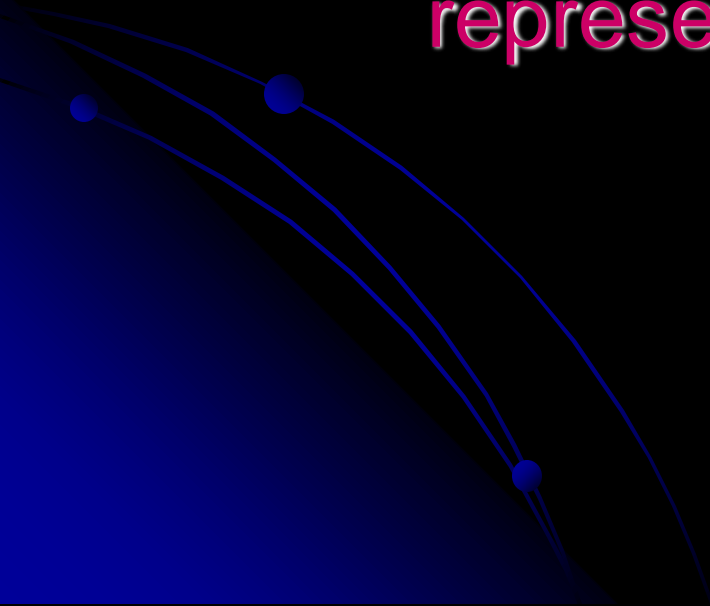
$$6 (3 + 2)$$

$$15 - 4 (6)$$

# What is a variable?

In the expression  $12 + B$ , the letter “B” is a variable.

**A variable is a letter or symbol that represents an unknown value.**



# Algebraic Expressions

When variables are used with other numbers, parentheses, or operations, they create an **algebraic expression**.

$$a + 2$$

$$(a)(b)$$

$$3m + 6n - 6$$

# What are coefficients?

A **coefficient** is the number multiplied by the variable in an algebraic expression.

Algebraic Expression

Coefficient

$$6m + 5$$

6

$$8r + 7m + 4$$

8, 7

$$14b - 8$$

14

# What is a term?

A **term** is the name given to a number, a variable, or a number and a variable combined by multiplication or division.

Algebraic Expressions

$$a + 2$$

$$3m + 6n - 6$$

Terms

$$a, 2$$

$$3m, 6n, - 6$$

# What are constants?

- A constant is a number that cannot change its value.

In the expression:  $5x + 7y - 2$   
the constant is  $- 2$ .

# Figure it out!

Identify the terms, coefficients, and constants.

1.  $12a - 6b + 4$

2.  $4x - 2y$

3.  $c - 32$

4.  $3x + 2$



# Writing Algebraic Expressions

- You can translate word phrases into variable expressions.
  - Examples:
    1. Three more than a number =  $x + 3$
    2. The quotient of a number and 8 =  $y/8$
    3. Six times a number =  $6 \times n$  or  $6n$
    4. 15 less than a number =  $z - 15$
    5. The quotient of 30 and a number plus 10 =  $30/x + 10$ .

# Key words to look for:

- Addition:

- Add
- Plus
- Sum
- Total
- Increased by
- More than

- Subtraction:

- Minus
- Difference
- Subtract
- Less than
- Decreased by
- less

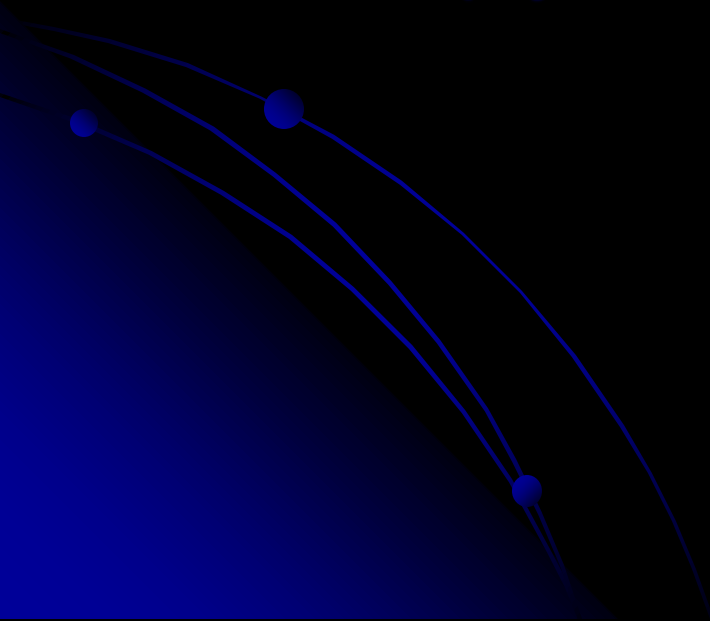
# Cont...

- Multiplication

- Product
- Times
- multiply

- Division

- Quotient
- divide



# Write algebraic expressions for these word phrases

1. Four more than  $s$
2. The product of 7 and  $c$
3. Nine less than  $x$
4. A number divided by the sum of 4 and 7.
5. Twice the sum of a number plus 4.
6. The sum of  $\frac{3}{4}$  of a number and 7.
7. Ten times a number increased by 150.

# Write an algebraic phrase for these situations

1. A car was traveling 35 miles per hour for a number of hours.
2. Bob ran 7 times a week for a number of weeks.
3. The plumber added an extra \$35 to her bill.
4. Thirty-five fewer people came than the number expected.