

Introduction to Algebra: Vocabulary

Equation: a math sentence that states two quantities are _____.

It will have an _____.

$$3x - 4 = 7$$

The equation says: what is on the left () is equal to what is on the right ().

Parts of an Equation

$$3x - 4 = 7$$

- **Variable:** a _____ that represents a number we do not know yet.

!!! **Every variable has a** _____

- **Coefficient:** the number _____ the variable.
Can be _____ or _____.

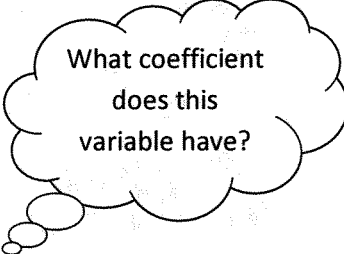
- **Constant:** a number with no _____ attached.

- **Term** – any of the following:

single number (constant)

single variable

the product of a number (coefficient) and variable(s).



What coefficient does this variable have?

$$2k + 15 - m - 3 + n - 7p$$

Terms: _____

Variables: _____

Coefficients: _____

Constants: _____

$$-8 - 4c + 7 - c - 12c - 2$$

Terms: _____

Variables: _____

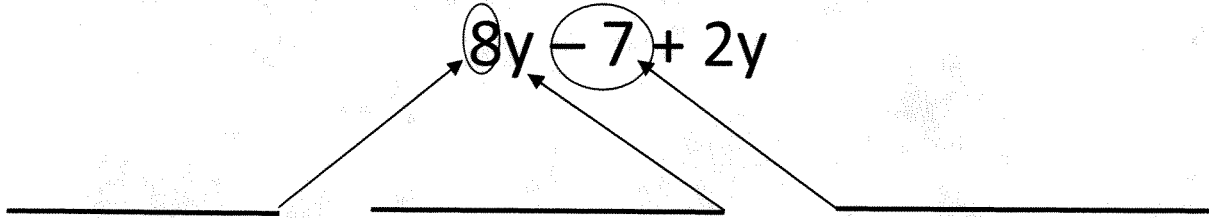
Coefficients: _____

Constants: _____

- **EXPRESSION:** a group of terms. Contains numbers, _____, and variables.
DOES NOT contain an _____.

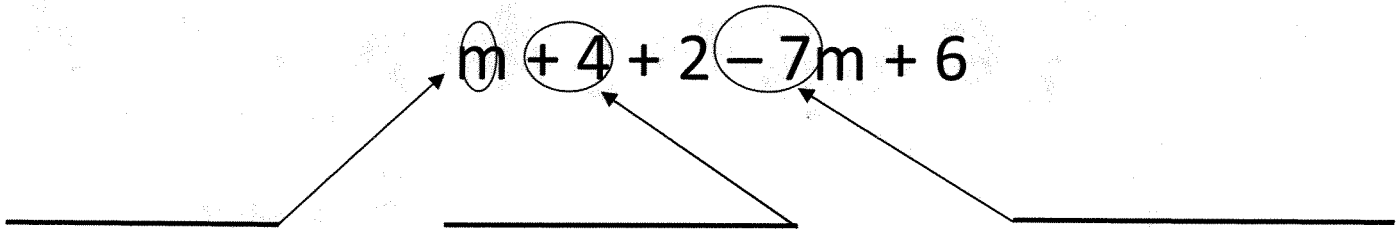
Label the parts of the expression: *Coefficient, Constant, Variable*

1.



How many TERMS are present in this expression? _____ List them: _____

2.



How many TERMS are present in this expression? _____ List them: _____

Identify the terms, variables, coefficients, and constants in each expression.

3. $-4a - 7b + 5 + c$

Terms:

Variables:

Coefficients:

Constants:

4. $7 - 5h - 2 - k$

Terms:

Variables:

Coefficients:

Constants:

5. $5 - 4x - 8y$

Terms:

Variables:

Coefficients:

Constants:

6. $9k + 7 - k + 4$

Terms:

Variables:

Coefficients:

Constants:

Inequality – a mathematical sentence that contains the symbols: .

$>$: _____

$<$: _____

\geq : _____

\leq : _____

Tell whether the following phrases are expressions, equations, or inequalities. Circle the key symbol.

1) $5x > 25$

2) $\frac{1}{2}x - 2$

3) $29 - k$

4) $8b + 9c < 45$

5) $\frac{xy}{12}$

6) $r - (-12) = 9$

7) $-4m = 16$

8) $h + (-9) \geq 3$

Identify the terms, variables, coefficients, and constants in each expression.

$-5a - 7 + 5d + h$

$7m - 5 - n - 8k$

Terms:

Terms:

Variables:

Variables:

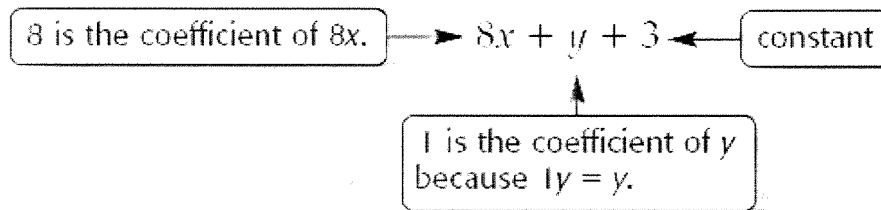
Coefficients:

Coefficients:

Constants:

Constants:

When plus or minus signs separate an algebraic expression into parts, each part is a **term**. The numerical factor of a term that contains a variable is called a **coefficient**. A term that does not contain a variable is called a **constant**.



Identify the terms, coefficients, and constants in each expression.

17. $3 + 7x + 3x + x$

Terms: _____

Coefficients: _____

Constants: _____

18. $y + 3y + 8y + 2$

Terms: _____

Coefficients: _____

Constants: _____

19. $2a + 5c - a + 6a$

Terms: _____

Coefficients: _____

Constants: _____

20. $5c - 2d + 3d - d$

Terms: _____

Coefficients: _____

Constants: _____

21. $6m - 2n + 7$

Terms: _____

Coefficients: _____

Constants: _____

22. $7x - 3y + 3z - 2$

Terms: _____

Coefficients: _____

Constants: _____

Name: _____ Date: _____ Block: _____

Match the vocabulary to the correct definition. Write the answer in the blank on the left side of the paper.

- | | | |
|-------|-------------------------|---|
| _____ | 1. Algebraic Expression | A. Each part of an expression separated by + or -. |
| _____ | 2. Coefficient | B. A number that stands by itself. |
| _____ | 3. Constant | C. A number that does not stand by itself. It is attached to the variable. |
| _____ | 4. Term | D. A letter that stands for a particular numerical value. |
| _____ | 5. Variable | E. A number sentence without an equal sign; has at least one term and one operation; algebraic expressions contain one or more variables. |

Identify each part of the algebraic expression as the coefficient, constant, or variable.

1. $4x - 12$

4 is a(n) _____

x is a(n) _____

12 is a(n) _____

2. $a + 3b$

a is a(n) _____

3 is a(n) _____

b is a(n) _____

3. $6y$

6 is a(n) _____

y is a(n) _____

1-4**Study Guide and Intervention****Algebra: Variables and Expressions**

To evaluate an algebraic expression you replace each variable with its numerical value, then use the order of operations to simplify.

EXAMPLE 1 Evaluate $6x - 7$ if $x = 8$.

$$\begin{aligned} 6x - 7 &= 6(8) - 7 && \text{Replace } x \text{ with } 8. \\ &= 48 - 7 && \text{Use the order of operations.} \\ &= 41 && \text{Subtract 7 from 48.} \end{aligned}$$

EXAMPLE 2 Evaluate $5m - 3n$ if $m = 6$ and $n = 5$.

$$\begin{aligned} 5m - 3n &= 5(6) - 3(5) && \text{Replace } m \text{ with } 6 \text{ and } n \text{ with } 5. \\ &= 30 - 15 && \text{Use the order of operations.} \\ &= 15 && \text{Subtract 15 from 30.} \end{aligned}$$

EXAMPLE 3 Evaluate $\frac{ab}{3}$ if $a = 7$ and $b = 6$.

$$\begin{aligned} \frac{ab}{3} &= \frac{(7)(6)}{3} && \text{Replace } a \text{ with } 7 \text{ and } b \text{ with } 6. \\ &= \frac{42}{3} && \text{The fraction bar is like a grouping symbol.} \\ &= 14 && \text{Divide.} \end{aligned}$$

EXAMPLE 4 Evaluate $x^3 + 4$ if $x = 3$.

$$\begin{aligned} x^3 + 4 &= 3^3 + 4 && \text{Replace } x \text{ with } 3. \\ &= 27 + 4 && \text{Use the order of operations.} \\ &= 31 && \text{Add 27 and 4.} \end{aligned}$$

EXERCISES

Evaluate each expression if $a = 4$, $b = 2$, and $c = 7$.

1. $3ac$

2. $5b^3$

3. abc

4. $5 + 6c$

5. $\frac{ab}{8}$

6. $2a - 3b$

7. $\frac{b^4}{4}$

8. $c - a$

9. $20 - bc$

10. $2bc$

11. $ac - 3b$

12. $6a^2$

13. $7c$

14. $6a - b$

15. $ab - c$