

Lesson 3.1

October 31, 2014

Essential Question:

How can you write and evaluate an expression that represents a real-life problem?

Lesson Objective:

Students will be able to:

write and evaluate an expression written in words.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to write and evaluate an expression written in words.
3	I can write and evaluate an expression written in words.
2	I recognize, but still need help to write and evaluate an expression written in words.
1	I do not know how to write and evaluate an expression written in words.

Learning Objective: Students will be able to write and evaluate an expression written in words.

Algebraic Expression

Expression that contains numbers, operations,
and one or more symbol.

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Terms

Part of an algebraic expression

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Variable

Symbol that represents one or more numbers

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Coefficient

The numerical factor of a term that contains a variable

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Constant

A term without a variable

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1

Identifying Parts of an Algebraic Expression

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

a. $5x + 13$

$$\begin{array}{r} \underbrace{5x} + \underbrace{13} \\ \text{Terms: } 5x, \quad 13 \\ \text{Coefficient: } 5 \qquad \qquad \qquad \downarrow \\ \text{Constant: } \qquad \qquad \qquad \downarrow 13 \end{array}$$

b. $2z^2 + y + 3$

$$\begin{array}{r} \underbrace{2z^2} + \underbrace{y} + \underbrace{3} \\ \text{Terms: } 2z^2, \quad 1y, \quad 3 \\ \text{Coefficients: } 2, \quad 1 \qquad \qquad \qquad \downarrow \\ \text{Constant: } \qquad \qquad \qquad \downarrow 3 \end{array}$$

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2 Writing Algebraic Expressions Using Exponents

Write each expression using exponents.

a. $d \cdot d \cdot d \cdot d$

Because d is used as a factor 4 times, its exponent is 4.

❖ So, $d \cdot d \cdot d \cdot d = d^4$.

b. $1.5 \cdot h \cdot h \cdot h$

Because h is used as a factor 3 times, its exponent is 3.

❖ So, $1.5 \cdot h \cdot h \cdot h = 1.5h^3$.

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3 Evaluating Algebraic Expressions

a. Evaluate $k + 10$ when $k = 25$.

$$k + 10 = 25 + 10$$

$$= 35$$

Substitute 25 for k .

Add 25 and 10.

b. Evaluate $4 \cdot n$ when $n = 12$.

$$4 \cdot n = 4 \cdot 12$$

$$= 48$$

Substitute 12 for n .

Multiply 4 and 12.

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4

Evaluating an Expression with Two Variables

Evaluate $a \div b$ when $a = 16$ and $b = \frac{2}{3}$.

$$a \div b = 16 \div \frac{2}{3}$$

Substitute 16 for a and $\frac{2}{3}$ for b .

$$= 16 \cdot \frac{3}{2}$$

Multiply by the reciprocal of $\frac{2}{3}$, which is $\frac{3}{2}$.

$$= 24$$

Multiply.

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$$a - b = a + -b$$

5 Evaluating Expressions with Two Operations

a. Evaluate $3x - 14$ when $x = 5$.

$$3x - 14 = 3(5) - 14$$

Substitute 5 for x .

$$= 15 - 14$$

Using order of operations, multiply 3 and 5.

$$= 1$$

Subtract 14 from 15.

b. Evaluate $z^2 + 8.5$ when $z = 2$.

$$z^2 + 8.5 = 2^2 + 8.5$$

Substitute 2 for z .

$$= 4 + 8.5$$

Using order of operations, evaluate 2^2 .

$$= 12.5$$

Add 4 and 8.5.

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Assignment

Complete problems 8, 12, 16, 20, 26, 30, 34, 36, 44, 46, 50, & 52 on pages 115 - 117 in your Big Ideas Text Book.

$$\frac{24}{6} + 8$$

$$\frac{24}{9} + 8$$

$$\frac{24}{10} + 8$$

with

$$\boxed{7h} + 3$$

$$\text{Terms} = 7h, 3$$

$$\text{Variable} = h$$

$$\text{Coeff.} = 7$$

$$\text{Const.} = 3$$

$$n^2 + \frac{1}{2}d + 0$$

$$T = n^2, \frac{1}{2}d$$

$$V = n^2, d$$

$$C_0 = 1, \frac{1}{2}$$

$$C_{0n} = 0$$

$$\frac{24}{6} + 8$$

$$\frac{24}{9} + 8$$

$$\frac{24}{9} + 8$$
$$\frac{10}{3}$$

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Homework

In your Big Ideas Record and Practice Journal
page 60 + 2 Candies each!!!