NAME_____

Module 1 **Number Sense**
Lesson 1 **Order of Operations**

Lesson Notes 1.1

Lesson Objectives

- Apply rules for Order of Operations to equations with whole numbers and parentheses.
- Apply rules for Order of Operations to equations with whole numbers and with or without parentheses, brackets, or exponents.
- Apply rules for Order of Operations to rational numbers.

Subtopic 1 Order of Operations (PEMDAS)

In the Order of Operations, PEMDAS stands for:

P**arentheses or other grouping symbols ( ) [ ] { }**

E**xponents n^3**

M**ultiplication ×**
D**ivision ÷**

A**ddition +**
S**ubtraction –**

Parentheses ( ), **brackets []** and **braces { }** are grouping symbols.

Subtopic 2 Order of Operations Involving No Parentheses

Evaluate:

1 $20 - 7 \times 2 + 1$
7

2 $14 + 6 \div 2 \times 3$
23

Subtopic 3 Order of Operations Involving Parentheses

3 $8 + 2 \times (4 - 3)$
10

4 $56 - (4 + 1) \times 6$
26

Subtopic 4 Order of Operations Involving Grouping Symbols and Exponents

When grouping symbols are inside grouping symbols, they are called **nested** grouping symbols.

In the expression 2^3, 3 is an **exponent** and 2 is a **base**.

Evaluate:

$2[4(6 - 3)] - 10$

14

$2^3 \div 8 + 2(4 - 2)$

5