Form 9: Learning Guide

Module Name: Number Sets
Course Name: Math 7: Online Component

Learning Goals/Outcomes
Upon completion of this module, you will be able to: • Students will perform addition, subtraction, multiplication, and division of whole numbers 0-10 without the aid of a calculator at 90% proficiency. • Students will create their own mnemonic device to remember the order of operations. • Students will relate integer operations to financial situations. • Students will breakdown key unit terms, writing a definition in their own words, and explain practical applications. (Key terms: Absolute Value, Additive Inverse, Integers, Opposites, Rational Number, Repeating Decimal, Terminating Decimal)

Learning Resources
Required Resources • Class Textbook (Chapters 1 & 2) • www.knahacademy.org • www.learningassistance.com/2006/january/mnemonics.html Additional Resources • Multiplication Table

Learning Activities
Activities for This Lesson • Review a multiplication table • View videos • Practice math facts at mathfactspro.com • Review key terms from textbook Discussion Questions • What are different types of mnemonic devices? How will they help you remember order of operations? • Where in the real-world are integers applicable? Focus on negative numbers.

Self-Assessment
Check your understanding • Can you perform the operations on integers? • Do you know the order of operations and how to apply? • Are you comfortable using the vocabulary from this module?

Lesson Evaluation: Graded Assessments
• Quiz on Integer Operations • Discussion Postings on Mnemonic Devices • Discussion Postings on Integers in Finances • Vocabulary Definitions posted to blog. • Artifacts to portfolio: Examples of integer operations, original mnemonic device, and original application of integers in financial math.

Form adapted from Smith, R. M. *Conquering the Content.* San Francisco: Jossey-Bass, 2008.

Module Name: Algebra
Course Name: Math 7: Online Component

Learning Goals/Outcomes
Upon completion of this module, you will be able to: - Students will evaluate expressions, when values are given for all variables with 90% accuracy.   - Students will translate a verbal expression into a mathematical (numerical) expression with 90% accuracy.   - Students will demonstrate their understanding of combining like terms through writing or illustrating a story to add meaning.   - Students will justify solving equations and inequalities and clarify what is undoing.   - Students will breakdown key unit terms, writing a definition in their own words, and explain practical applications. (Key terms: Addition Property of Equality, Division Property of Equality, Equality, Equivalent Equations, Factoring, Inequality, Like Terms, Linear Expression, Multiplication Property of Equality, Solution Set, Subtraction Property of Equality)

Learning Resources
Required Resources   - Class Textbook (Chapters 3 & 4)   - www.knahacademy.org   - Lecture Notes   Additional Resources   - Algebra Tiles

Learning Activities
Activities for This Lesson   - View videos   - Practice substitution and evaluating expressions   - Practice translating expressions   - Practice combining like terms   - Review key terms from textbook   Discussion Questions   - What is meant by undoing to solve an equation? Provide specific examples.

Self-Assessment
Check your understanding   - Can you evaluate expression?   - Can you translate from a verbal to mathematical model?   - Can you combine like terms?   - Can you solve equations for a variable?   - Are you comfortable using the vocabulary from this module?

Lesson Evaluation: Graded Assessments
- Quiz on Evaluating Expressions   - Quiz on Translating Expressions   - Presentation on like terms.   - Discussion Postings on Solving Equations by Undoing.

Form adapted from Smith, R. M. *Conquering the Content*. San Francisco: Jossey-Bass, 2008.

- Vocabulary Definitions posted to blog.
- Artifacts to portfolio: Formula with substitution to solve for an unknown quantity, translate example and key words, equation example (with minimum of 5 steps to solve).