Spokane Community College

COURSE LEARNING OUTCOMES (CLO) AND OUTLINE

Course Title: Essentials of Algebra 2
Prefix and Course Number: MATH 72
Version Date: 1/28/2022

Course Learning Outcomes

By the end of this course, a student should be able to:

1. Use quadratic, exponential, rational, and radical models, and regression with technology to make predictions.

2. Apply algebraic concepts to solve quadratic, exponential, rational, radical, and absolute value equations.

3. Perform operations of addition, subtraction, multiplication, and division to simplify quadratic, exponential, rational, and radical expressions.

4. Identify, evaluate, graph, and find domain and range of exponential, rational, radical and absolute value functions.

5. Perform algebra of functions, compose functions, find, simplify, and identify inverse functions.

6. Describe the meaning of logarithm and logarithmic function. Evaluate logarithmic functions.

Course Outline:

I. Quadratics
- **A.** Solving quadratic equations with real and non-real solutions using the square root property, completing the square and quadratic formula
- **B.** Applications, modeling, and regression with quadratic functions

II. Exponentials
- **A.** Definition of Exponential Function
- **B.** Simplify expressions with integer exponents, scientific notation
- **C.** Graphing exponential functions, domain, and range
- **D.** Solving simple exponential equations without the use of logarithms
- **E.** Applications, modeling, and regression with exponential functions

III. Introduction to Logarithms
- **A.** Functions: Algebra of, Composite, Inverse
- **B.** Understand the definition of a logarithm and the inverse relation to exponential functions
- **C.** Evaluate logarithmic functions

IV. Rationals
- **A.** Graphing rational functions, domain, and range
- **B.** Simplify, addition, subtraction, multiplication, and division of rational functions
- **C.** Solving rational equations, checking for extraneous solutions
- **D.** Applications and modeling with rational functions

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V. Radicals

- **A.** Rational Exponents
- **B.** Simplifying, adding, subtracting, and multiplying radical expressions
- **C.** Rationalizing denominators and simplifying quotients
- **D.** Algebra of Complex Numbers
- **E.** Graphing radical functions, domain, and range
- **F.** Solving radical equations
- **G.** Pythagorean Theorem, applications and modeling with radical functions

VI. Absolute Value

- **A.** Compound Inequalities
- **B.** Solve Absolute Value Equations and Inequalities
- **C.** Absolute Value Functions
- **D.** Graph Absolute Value Functions and determine domain and range