

Integrated Mathematics 2 – Key Objectives | Exponential Functions Unit

This Exponential Functions Unit will encompass 2 MAJOR concepts – 1 of which you know from our first Unit in Integrated Math 10 and 1 of which will be new to you. The MAJOR concepts are: (1) Exponential Relations and (2) Functions. Both of these major concepts will be continually revisited in later units in the course, so it is important to understand these concepts and master the required skills.

(A) Exponential Relations

- a. Simplifying Exponential Expressions – The Algebra of Exponential Functions **(R)**
 - i. Apply laws of exponents, including zero and negative and fractional exponents **(R)**
 - ii. Interchange between rational (fractional) exponents and radicals to evaluate and simplify simple expressions **(R)**
- b. Solving Exponential Equations – The Algebra of Exponential Functions **(N)**
 - i. Solve exponential equations algebraically using involving common bases and logarithms **(N)**
 - ii. Solve systems involving exponential functions graphically and numerically **(N)**
- c. The Graphing & Evaluation of Exponential Functions **(N)**
- d. The Applications of Exponential Functions **(N)**
 - i. Write equations for exponential growth & decay functions in a variety of contexts. **(N)**
 - ii. Apply equations for exponential functions to solve a variety of contextual problems. **(N)**
 - iii. Explain and discuss the meaning of exponential functions in various contexts. **(N)**

(B) Functions

- a. Understand and identify the domain and range of exponential functions. **(R)**
- b. Understand function notation and be able to evaluate and solve functions. **(R)**
- c. Work with piecewise functions: (graphing, determine domain & range, real world applications). **(N)**
- d. Find an inverse function algebraically and graphically and thereby introduce logarithms. **(N)**
- e. Understand and be able to perform function composition (linear with exponential) and thereby introduce transformations **(N)**
- f. Apply simple transformations of exponential functions – initially use only vertical and horizontal translations **(N)**