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| **INSTRUCTIONAL OBJECTIVES:** Pages 115 – 121 (Chapter 1: *Inverse Relations and Inverse Functions*). |
| * Review the definitions of relation and function. |
| * Understand the definition of a *One-to-One Function.* |
| * Be able to use the *Vertical Line Test* and the *Horizontal Line Test* to identify *One to One Functions.* |
| * Find the inverse of a function. |
| * Know when to use inverse functional notation. |
| * Know how to prove that 2 functions are inverses of each other by the appropriate use of composition. |
| * Define a relation parametrically. |
| * **Technology:** Smart Board, graphing calculator (TI-83 or TI-84). |

**CHAPTER 2: *Quadratic Functions and Their Graphs* (Pages 158-162)**

**Key Concepts**: Quadratic Function, Parabola, Axis of Symmetry, Vertex, Concave Upward, Concave Downward, Maximum, Minimum, Vertex Quadratic Form, Standard Quadratic Form, X-Intercept, Zero, Y-Intercept

**Essential Questions:**  In what ways are you able to characterize the graph of a quadratic function, both in standard and in vertex forms? How can you use your graphing calculator to characterize the graph of a quadratic function? How can you use quadratic functions to solve real-life problems?

**Objective:** The student will demonstrate an understanding of the characteristics of functions.

**Technology:** Graphing calculator (TI-84).

***TUESDAY, 10.22.24***

**Discussion of previously assigned work,** Handout (6 Quadratic Modeling Problems).

**Homework:** Study for the Test (Quadratic Modeling) to be taken during your next class period. You may use one page of notes, written on one sheet of paper, front and back, 8.5 by 11 inches. You will turn in your page of notes with your test paper.

***THURSDAY, 10.24.24***

**Test (Quadratic Modeling)**

**New Unit**

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| **CHAPTER 3:** ***Exponential and Logistic Functions* (Pages 245 – 267)** |
| **Objectives:** |
| Define exponential functions. |
| Distinguish between growth and decay. |
| Graph an exponential function, showing its initial value and its asymptote. |
| How do you find the initial value of an exponential function? |
| **Essential Questions:** |
| What is the model for exponential growth? What is the model for exponential decay? Can you give an actual example of exponential growth? Can you give an actual example of exponential decay? |
| **Technology:** TI-84 plus graphing calculator |

**Class Work/Homework:**

* Read and take notes on pages 245 – 249.
* Page 255, ***Quick Review***, #1 – 10.
* Page 255, ***Exercises***, #1 – 6.

***FRIDAY, 10.25.24***

**Discuss the previously assigned work:**

Pages 245 – 249.

Page 255, ***Quick Review***, #1 – 10.

Page 255, ***Exercises***, #1 – 6.

**Notes:** An exponential function is in the form of f**(*x*) = *abx,*** where *b* > 0, *b* ≠ 1, and *a*, *b*, and *x* are a real numbers.

If **b > 1**, the exponential function will model **growth**.

If **0 < b < 1**, the exponential function will model **decay**.

**Class Work/Homework:**

* **Graph the following.**

1. y = 2 ⋅ 3 x
2. y = 2 ⋅ (1/3)x
3. y = 2 ⋅ x3

* Page 255, ***Exercises*,** #7 – 12.