

## Study Guide for Algebra 2 Midterm - First Semester

### **Section 1 - Function Basics**

- Tell if a relation is a function
- Finding domain and range of a function
- Graph linear function by finding intercepts
- Graph an absolute value equation from vertex form

### **Section 2 - Solving Systems of Equations**

- Solve a system of 3 variables using substitution
- Solve a system of 3 variables using elimination

### **Section 3 - Function Transformations**

- Use the quadratic parent function to show translations in different directions
- Use the absolute value parent function to show a stretch and shrink
- Identify the composition of transformations that occurred using a linear graph

### **Section 4 - Writing Linear and Quadratic Functions**

- Write a linear function from slope intercept form from two points, then graph.
- Use Linear Regression on a graphing calculator.
- Write a quadratic function given a point and the vertex
- Use Quadratic Regression on a graphing calculator

### **Section 5 - Graphing Quadratic Functions**

- Determine minimum or maximum; increasing and decreasing intervals
- Graph from standard form or intercept form

### **Section 6 - Solving Quadratic Equations**

- By graphing the related function and finding the root on your calculator
- By taking the square root of both sides and writing in simplest radical form
- By factoring and using the zero product property
- By completing the square and then taking the square root
- By using the Quadratic Formula and Discriminant

### **Section 7 - Height of a falling object**

- Write the function of a falling object that has been dropped, graph the scenario, determine when the object hits the ground.
- Write the function of a falling object that has been projected upward, find the maximum height, when it will reach this maximum height, and when it will hit the ground.