**Exam 2 Topic List – Math 110 – Spring 2014**

“Do not worry about your problems with mathematics, I assure you mine are far greater.”

-Albert Einstein

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| **Date covered in class** | **Topic** | **Learning Objective** |
| Feb 3 | Linear Systems | Given context,   * define variables * write a linear system * solve a linear system (algebraically (substitution or elimination) and graphically) AND interpret the solution. |
| Feb 5 | **Exam 1** | |
| Feb 7 | Linear Systems | Given system,   * create context * solve a linear system (algebraically (substitution or elimination)) AND interpret the solution.   Given context,   * define variables * write a linear system * solve a linear system (algebraically (substitution or elimination)) AND interpret the solution. |
| Feb 10 | Linear Programming | Given context,   * define variables * write an equation for the objective function * write a system of inequalities (constraints) * graph the system of inequalities and shade the feasible region * find all corner points (using substitution or elimination when needed) * determine the combination needed to maximize or minimize the objective function and write a conclusion statement for the problem. |
| Feb 12 | Explain what the feasible region represents. |
| Explain what the corner points represent. |
| Feb 17 | **Exam 2** | |

**\*\*ALL EXAMS ARE CUMULATIVE\*\***

**Refer to the Exam 1 topic list on the following page and review your first exam.**

**Exam 1 Topic List – Math 110 – Spring 2014**

“For the things of this world cannot be made known without a knowledge of mathematics” – Roger Bacon

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| **Date covered in class** | **Topic** | **Learning Objective** |
| Jan 13 | Ind/Dep Variables | Define independent and dependent variables (labeling with ind/dep, meaning, units, and letter) |
| Jan 15 | Definition of a function, Function Notation | Identify if a relationship is a function and justify with the definition of a function |
| Demonstrate proper use of function notation |
| Differentiate between the following statements: Evaluate f(0) and Solve f(x)=0 |
| Given input, find output AND interpret the results |
| Given output, find input AND interpret the results |
| Domain and Range | Given a table, graph, equation, or situation, be able to identify the domain and range |
| Be able to use either interval or inequality notation to define the domain and range |
| Jan 17 | Transformations (shifts and reflections) | Given an expression or a graph, be able to identify and apply transformations (horizontal & vertical shifts, reflections) |
| Jan 20 | Average Rate of Change, Linear Functions | Calculate AND interpret the average rate of change |
| Given a table, graph, equation, or situation, be able to identify if the function is a linear function AND justify your reasoning. |
| Jan 22 & Jan 24 | Linear Functions | Given a verbal description with a calendar year such as 1990, be able to reinitialize the variable to read: years after 1990. |
| Given a linear function, identify AND interpret the slope and vertical intercept in the context of the problem |
| Differentiate between the vertical and horizontal intercept |
| Determine the horizontal intercept AND interpret it in the context of the situation |
| Write the equation of a linear function from a table, graph, or situation |
| Given an initial value and slope, write the equation for a linear function |
| Given any two points, be able to calculate the slope and the vertical intercept and then write the equation using this information (saucy soda factory question) |
| Domain and Range | Given a table, graph, equation, or situation, be able to identify the domain and range |
| Be able to use either interval or inequality notation to define the domain and range |
| Jan 27 & Jan 29 | Piecewise Functions | Write the equation for a piecewise function (from a table, graph, or situation) |
| Jan 31 | Pendulum Lab | Apply all concepts above to real data. Analyze data to determine if data can be represented by a linear function. |
| Feb 5 | **EXAM 1** | |