Integrated Math 2 Study Guide for the Semester Exam

Ways to study:

- Go to my website www.bolusmath.weebly.com
- Go over the topics in the textbook
- Rework old homework problems
- Make up your own problems
- Study with a friend

Polynomials

Classifying by Term and Degree
Adding and Subtracting
Multiplying polynomials
- Difference of Squares shortcut
- Perfect Square Trinomial shortcut

Functions

Transformations of Functions
- Right, Left, Up, Down, Stretch, Compression

Piecewise Functions
Domain and Range
Maximums and Minimums
Increasing/Decreasing
Average Rate of Change

Exponent Rules

Anything to the Zero Power is 1
Negative Exponents $2^{-3} = \frac{1}{8}$
$a^2 \cdot a^3$
$\frac{a^3}{a^2}$
$(a^2)^3$
Exponential Equations: $2^x = 32$
Rational Exponents $8^{\frac{1}{3}} = 2$
Simplifying Radicals

Exponential Functions

Recognize an exponential chart
Domain and Range of a graph
End Behavior
Write an exponential function for a situation
*Ex: The number of fish in a pond can be modeled by the function $f(t) = 1200(0.85)^t$, where **t** is the number of years. 1200 is the initial amount of fish. The amount is decreasing by 15% each year.*
Compound Interest
Interpret exponential functions where the exponent isn't t ex: $y = 5(2)^{2t}$ how often does it double?

Quadratics

Axis of Symmetry
Zeros
Vertex
Vertex Form
Standard Form
Intercept Form (Factored Form)
Translate between the three different forms
Solve Quadratic Equations
- By Graphing
- By Factoring
- By Square Root of Both Sides
- By Completing the Square
- By the Quadratic Formula

Know what the Discriminant is and what it tells us about how many solutions there are
Complex Numbers
- Add, Subtract, Multiply, and Divide them

Know that Quadratic Functions have constant second differences
Linear, Quadratic, and Exponential Regression Models