For the final exam, you should be able to do the following things:

Block 1: Linear Equations and Inequalities.

- Know basics of arithmetic, including order of operations, evaluating absolute value, and using the symbols $<$, $>$, and $=$
- Solve linear equations by isolating the variable
- Plot points in the xy-plane
- Find the x-intercepts and y-intercepts of the graph of an equation
- Compute the slope of a line given two points on the line
- Find the slope of a line given its equation
- Find the slope of a line parallel or perpendicular to a given line
- Write equations of lines that meet certain criteria
- Solve linear inequalities by isolating the variables, remembering that multiplying or dividing an inequality by a negative number requires you to flip the sign
- Solve three-part inequalities
- Solve absolute value inequalities by remembering how to set up the solution method
- Solve two-variable systems of linear equations using either substitution or elimination
- Solve three-variable systems of linear equations

Block 2: Polynomials: Quadratic Equations, Inequalities, and Functions.

- Add and subtract polynomials by combining like terms
- Multiply polynomials using repeated use of the distributive property (such as FOIL)
- Factor a polynomial by pulling out a common factor from all terms
- Factor a three-term polynomial of the form $ax^2 + bx + c$ using trial and error or the methods introduced in class
- Solve quadratic equations by factoring
- Solve quadratic equations by using the quadratic formula
- Given a function, evaluate it at given values
- Sketch the graph of a function by plotting points, including piecewise-defined functions
- Find the vertex of a quadratic function
- Find all x-intercepts and y-intercepts of the graph of a quadratic function
- Use the leading coefficient of a quadratic function and its vertex to determine the maximum or minimum value of the the function
- Solve quadratic inequalities by remembering the solution method (factor, find sign-change points, and make table that checks signs between sign-change points)

Block 3: Rational and Radical Expressions, Equations, and Functions.
- Write a rational expression in lowest terms by factoring the numerator and denominator and canceling common factors
- Multiply rational expressions by multiplying the numerators and multiplying the denominators
- Divide rational expressions by multiplying the first by the reciprocal of the second
- Rewrite a rational expression with a new denominator
- Add and subtract rational expressions by finding a common denominator and rewriting the expressions with that denominator, then adding the new numerators
- Solve rational equations by multiplying both sides by a common denominator and solving the resulting polynomial equation
- Solve rational and polynomial inequalities by remembering the solution method (find sign-change points and make table that checks signs between sign-change points)
- Use the rules of exponents to manipulate and simplify expressions with exponents, including negative exponents or rational exponents
- Translate between expressions with rational exponents and radical expressions, and use this to manipulate and simplify expressions with radicals

Block 4: Exponential and Logarithmic Equations and Functions.
- Know shape of a graph of an exponential function
- Evaluate exponential functions at different values
- Be familiar with the number e
- Know how to translate between a logarithmic statement and an exponential statement: $\log_a(x) = y$ is equivalent to saying $a^y = x$
- Know shape of a graph of a logarithmic function
- Know the important properties of logarithms and be able to use them to rewrite expressions with logarithms
- Know the change of base formula
- Solve exponential and logarithmic equations using the methods covered in class

Possible Word Problem Material.
- 2.1-2.3: Applications of Linear Equations
- 4.2: Applications of Systems of Equations
- 9.5-9.6: Applications of Quadratic Equations and Quadratic Functions
- 10.2-10.5: Applications of Exponential Functions, including compound interest