Review for Exam 2
Section 5.1

- Know the rules of exponents.
- Be able to use the rules of exponents to simplify and evaluate expressions.
- Be able to rewrite algebraic expressions using only positive exponents.
- Practice Problems: #1-17 odds, 25, 27, 31, 45, 47, 63-75 odds

Section 5.2

- Be able to determine whether an algebraic expression is a polynomial, and if so, be able to determine its degree and leading coefficient.
- Be able to add and subtract polynomials (Don't worry about the difference between the "horizontal" and "vertical" formats.).
- Practice Problems: #31-39 odds, 51-57 odds, 69-75 odds

Section 5.3

- Be able to multiply two polynomials (Don't worry about the difference between the "horizontal" and "vertical" formats.).
- Be able to use the FOIL method to multiply two binomials.
- Know how to use the "difference of squares" and the "squares of binomials" formulas.
- Practice Problems: #11-31 odds, 33-43 odds, 63-79 odds

Section 5.4

- Be able to factor out the greatest common factor of an algebraic expression.
- Be able to factor by grouping.
- Know how to recognize and factor the difference of two squares.
- Practice Problems: # 21-33 odds, 55-33 odds, 77-97 odds

Section 5.5

- Be able to recognize and factor perfect square trinomials.
- Be able to factor trinomials completely.
- Practice Problems: #1-13 odds, 67-83 odds, 87, 89, 91

Section 5.6

- Know how to use the "Zero-Factor Property" to solve equations.
- Be able to solve quadratic equations by factoring.
- Practice Problems: #7-45 odds

Section 6.1

- Be able to recognize rational expressions and functions.
- Know how to find the domain for a rational function.
- Know how to simplify rational expressions, and keep track of the domain of the simplified expression.
- Practice Problems: #1-11 odds, 25, 43-71 odds

Section 6.2

- Be able to multiply and simplify rational expressions, keeping track of the domain during the simplification process.
- Be able to divide and simplify rational expressions, keeping track of the domain during the simplification process.
- Practice Problems: #13-27 odds, 37-49 odds, 53

Section 6.3

- Be able to add, subtract, and simplify rational expressions, keeping track of the domain.
- Practice Problems: #5-13 odds, 49-59 odds, 75

Section 6.4

- Be able to simplify complex fractions, keeping track of the domain.
- Practice Problems: #1-17 odds, 23-33 odds, 43

Section 7.1

- Be able to calculate principal n^{th} roots of numbers.
- Know the properties of n^{th} powers and n^{th} roots.
- Know how to use rational exponents.
- Be able to use the properties of exponents to simplify and evaluate expressions.
- Practice Problems: #1-8, 39-61 odds, 73-123 odds

Section 7.2

- Be able to simplify radicals and radical expressions.
- Be able to rationalize denominators and simplify.
- Practice Problems: #1-53 odds

Section 7.3

- Be able to add and subtract radical expressions, and be able to combine them if possible.
- Practice Problems: #15-39 odds, 47-55 odds

Section 7.4

- Be able to multiply and simplify radical expressions.
- Know how to calculate the conjugate of a radical expression and use it to rationalize a fraction.
- Practice Problems: #1-49 odds, 75-89 odds

Section 7.5

- Be able to solve radical equations, and check for extraneous solutions.
- Practice Problems: #5-19 odds, 39-53 odds

Section 7.6

- Be able to write complex numbers in standard form.
- Be able to add, subtract, and multiply complex numbers.
- Practice Problems: #19-39 odds, 55-69 odds

Formulas and Properties to Know

- $a^m \cdot a^n = a^{m+n}$
- $\dfrac{a^m}{a^n} = a^{m-n}$
- $(ab)^m = a^m b^m$
- $(a^m)^n = a^{mn}$
- $\left(\dfrac{a}{b}\right)^m = \dfrac{a^m}{b^m}$
- $a^0 = 1$
- $a^{-m} = \dfrac{1}{a^m}$
- $\left(\dfrac{a}{b}\right)^{-m} = \left(\dfrac{b}{a}\right)^m$
- $a^1 = a$
- $(u+v)(u-v) = u^2 - v^2$
- $(u+v)^2 = u^2 + 2uv + v^2$
- $(u-v)^2 = u^2 - 2uv + v^2$
- $a^{1/n} = \sqrt[n]{a}$
- $(\sqrt[n]{a})^n = a$ if a has a principal n^{th} root
- $\sqrt[n]{a^n} = a$ if n is odd
  $\sqrt[n]{a^n} = |a|$ if n is even
- $\sqrt[n]{uv} = \sqrt[n]{u}\sqrt[n]{v}$
- $\sqrt[n]{\dfrac{u}{v}} = \dfrac{\sqrt[n]{u}}{\sqrt[n]{v}}$
- $\sqrt{-1} = i$