Study Guide for Test 1

I have listed a range of possible practice problems for each of the main concepts covered on the test. I'd suggest looking at the worked out examples in the textbook (I've provided page numbers), and trying a few practice problems (there are a lot) for each concept. Focus on the odd-numbered problems, so you can check your answers against the solutions given in the back of the book. Note that the following is just a list of the material covered in class. Not all of it will be covered on the exam, but all of it is fair game.

Key concepts

For this test, you should know how to do the following :

1. Find the domain of a rational expression
   Read: pg 35
   Practice problems: Sec 1.4 #s 1-5

2. Add, multiply, divide, and simplify rational expressions
   Read: pg 36-39
   Practice problems: Sec 1.4: #s 6-60

3. Solve for one variable in an equation in terms of the others
   Read: pg 46
   Practice problems: Sec 1.5 #s 23 through 36

4. Solve quadratic equations via different methods (make sure you remember the quadratic formula, or program it into your calculator)
   Read: pg 47-52
   Practice problems: Sec 1.5 #s 37 – 68

5. Solve for the parameters in an equation
   Practice problems: Sec 1.5 # 110

6. Set up and solve modeling problems involving geometry
   Read: Sec. 1.6, Examples 3, 4, and 5
   Practice problems: Sec 1.6 #s 7, 8, 33-50

7. Set up and solve modeling problems involving distance, rate and time
   Read: Sec. 1.6, Example 8
   Practice problems: Sec 1.6 #s 65-71

8. Set up and solve modeling problems involving sharing a job
   Read: Sec. 1.6, Example 7
   Practice problems: Sec 1.6 #s 59-64

9. Set up and solve modeling problems involving mixtures
   Read: Sec. 1.6, Example 6
   Practice problems: Sec 1.6 #s 52-58

10. Know the rules for working with inequalities
    Read: pg 76-77

11. Solve linear inequalities and simultaneous inequalities (be sure to know how to use interval notation, also)
    Read: Section 1.7, Examples 1 and 2
    Practice problems: Sec 1.7 #s 7-28

12. Solve nonlinear inequalities (be sure to know how to use interval notation, also)
    Read: Section 1.7, Examples 3 and 4
    Practice problems: Sec 1.7 #s 29-62

13. Solve absolute value inequalities (be sure to know how to use interval notation, also)
    Read: Section 1.7, Example 6
    Practice problems: Sec 1.7 #s 63-76

14. Memorize and be able to use the distance and midpoint formulas
    Read: Section 1.8, Examples 2 and 3
    Practice problems: Sec 1.8 #s 3-12

15. Algebraically find the x-intercepts and y-intercepts of the graph of an equation
    Read: Section 1.8, Example 7
    Practice problems: Sec 1.8 #s 47-50

16. Find the equation of a circle given a midpoint and a radius, and vice versa (find the midpoint and radius given an equation)
    Read: Section 1.8, Examples 8 and 9
    Practice problems: Sec 1.8 #s 81-88

17. Identify different types of symmetry
    Read: Section 1.8, Examples 11 and 12, table of definitions on pg 95
    Practice problems: Sec 1.8 #s 71-80

18. Use your graphing calculator to graph equations and solve for the zeros of an equations
    Read: Sec 1.9 Examples 1-5
    Practice problems: Sec 1.9 #s 7-18, 37-48

19. Find the equation of a line given a slope and a point, or just two points
    Read: Sec 1.10 Examples 1-6
    Practice problems: Sec 1.10 #s 15-24

20. Understand and be able to find the equations of lines that are parallel and perpendicular to a given line, passing through a given point
    Read: Sec 1.10 Examples 7-9
    Practice problems: Sec 1.10 #s 25-34

19. Interpret the meaning of the slope of a line in a real-world context
    Read: Sec 1.10 Examples 11 and 12
    Practice problems: Sec 1.10 #s 61-72

20. Understand the different types of variation, such as direct variation, inverse variation and joint variation. Understand and be able to use phrases like "directly proportional to," "inversely proportional to," and "jointly proportional with"
    Read: Sec 1.11 – All
    Practice problems: Sec 1.11 #s 1-22

21. Determine whether a relationship between two variables (given as a table, graph, or equation) defines one variable as a function of the other
    Read: Sec 2.1 pgs 148-150 (definition of a function), Sec 2.2 Example 9 (vertical line test)
    Practice problems: Sec 2.2 55, 56

23. Find the domain and range of a function (and express the results in interval notation)
    Read: Sec 2.1 Example 6
    Practice problems: Sec 2.1 #s 37-58

24. Simplify a difference quotient
    Read: Sec. 2.1 Example 4
    Practice problems: Sec 2.1 #s 29-36

22. Evaluate and graph piecewise-defined functions
    Read: Sec. 2.2, Example 5
    Practice problems: Sec 2.2 #s 37-52

23. Graph different functions and extract information from graphs
    Read: Sec. 2.2 Example 3, table on page 166
    Practice problems: Sec 2.2 #s 1-25