Study Guide for Test 4

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.

I will provide the following formulas: Addition and subtraction formula for sine and cosine (pg 535), double angle formulas for sine and cosine (pg. 542), and power reduction formulas for sine and cosine (pg. 544).

You will be expected to know the pythagorean identities, reciprocal identities, and even and odd identities (pg. 528). You will also be expected to know the values of sine, cosine and tangent for certain special angles (pg. 410, table 1). Problems involving cofunction identities will not appear on the exam.

Key concepts

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

1. Locate points on the unit circle, and show that a given point is on the unit circle
   Read: Sec 5.1 Examples 1 and 2
   Practice problems: Sec 5.1 #s 1-18

2. Find Reference Numbers and use Reference numbers to find terminal points
   Read: Sec 5.1 Examples 3-7
   Practice problems: Sec 5.1 #s 19-54

3. Determine the 6 trigonometric function values of “special” values, and evaluate trig and inverse trig function values exactly for “special” angles/numbers
   Read: Sec 5.2 Examples 1 , table of values on pg 410
   Practice problems: Sec 5.2 # 1-22s

4. Know the sign of the 6 trigonometric functions in each quadrant
   Read: Pg 411
   Practice problems: Sec 5.2 #s 45-52

5. Determine whether functions involving trigonometric expressions are even, odd, or neither
   Practice problems: Sec 5.2 #s 71-78

6. Solve for values of the 6 trigonometric functions given different pieces of information.
   Read: Sec 5.2 Examples 6 and 7

Practice problems: Sec 5.2 #s 49-70

7. Graph sine and cosine functions (amplitude, period, phase shifts and vertical shifts), and extract information about these functions from their graphs.
Read: Section 5.3 Examples 1-5
Practice problems: Sec. 5.3 #s 1-48

8. Graph tangent, cotangent, secant, and cosecant functions (period, horizontal and vertical shifts) and extract information about these functions from their graphs. Be able to identify vertical asymptotes.
Read: Sec 5.4 all
Practice problems: Sec 5.4 #s 1-52

9. Model simple and damped harmonic motion.
Read: Sec 5.5 all
Practice problems: Sec 5.5 #s 1-41

10. Use identities to simplify trigonometric expressions.
Read: Sec 7.1 Examples 1-2
Practice problems: Sec 7.1 #s 1-24

11. Prove trigonometric identities
Read: Sec 7.1 Examples 3-6
Practice problems: Sec 7.1 #s 25-88

12. Use the addition and subtraction formulas for sine, cosine, and tangent.
Read: Sec 7.2 Examples 1-5
Practice problems: Sec 7.2 #s 1-18

13. Use the double angle identities and formulas for reducing power.
Read: Sec 7.3 Examples 1,2,4
Practice Problems: Sec 7.3 #s 1-14

14. Know restrictions for sin, cos, & tan in order to get arcsin, arccos, & arctan, and know the domain/range, graphs, asymptotes of each.
Read: Pg 551, 553, 555

15. Evaluate trig and inverse trig function values exactly for “special” angles/numbers.
Read: Sec 7.4 Examples 1,4,7
Practice problems: Sec 7.4 #s 1-8