

**Chapter 2, Section 1:** (Main idea: Trig in Right Triangles)

Trig is used quite a lot to solve problems involving right triangles. We could have introduced all the trig functions just from right triangles. Look at these definitions and see that they are consistent with the definitions you already learned. Don't move forward until you believe that they are consistent. When you agree that they are consistent, you'll want to memorize these definitions as well. But don't make it hard. You should be able to use this to make it easier to remember the definitions from Ch. 1.

If you look very carefully at the triangle in figure 3 and the discussion next to it, you should see that these cofunction identities are really easy to understand if we think about a right triangle. Can you use that understanding to remember them without having to work on memorizing them?

There are two very special right triangles for which you should be able to derive the lengths of the sides. Those are 30-60-90 and 45-45-90. See p. 49-50. We'll talk about it in class. Be sure that you learn to derive these lengths of the sides. And then use them to find all the trig functions of the "special angles." Don't try to memorize the table at the end of p. 50. Use the special triangles that you learned to derive to find the sine and cosine of each of the angles and then figure out the others from that using reciprocals and quotients. This is an important part of learning the reciprocal and quotient identities.

2.1: # 5,13,20,21,23,27,30,35,36,37,38,41,42, 45-48, 55,57,58,59,64,65

**Chapter 2, Section 2:** (Main idea: Reference angles)

Reference angles are always formed with the x-axis. Why?

Answer: To keep the  $x$ 's and  $y$ 's straight. We'll talk about that in class. It's important! Ask and keep asking until you understand it. Be sure to learn to use reference angles to find the trig functions of MANY angles as indicated in problems 10-43 of this section!

You must be able to do 10-43 in this section WITHOUT A CALCULATOR! But it is useful to know how to use a calculator to check your answers. Can you do that? If not, please ask.

2.2: # 5,6,7,8,10-17,19,30 - 33, 38, 40, 41, 44 - 47,50-55,60,61,62,63

**Chapter 2, Section 3:** (Main idea: Details about using a calculator for trig.)

Finding a trig function of an angle that ISN'T in decimal degrees. Method: Convert to decimal degrees first.

My calculator doesn't have a sec key! How do I find the secant of an angle? Answer: No calculators have a secant key. They assume you know that it's the reciprocal of cosine. When you're using this, I strongly recommend that you write out what you are doing by hand first and use that as a guide to what to punch into the calculator.

"Going backwards," i.e. finding an angle when you're given a trig function. Method: Use the button on your calculator called  $\sin^{-1}$  or  $\cos^{-1}$  or  $\tan^{-1}$ . And then use the method of reference angles or the graphs of the trig functions to find additional solutions.

2.3: # 1,3,6,12,15,18,22,23,24,25,31,34,40,42,48,51,55,57,59 (in 59, also use the speed of light modeling information from the material before problems 57-58.)

**Chapter 2, Sections 2 & 3 SUPPLEMENT Solving Trig Equations**

Students often need more practice in solving simple trig equations than the few problems given. (Sec. 2 61-66 and Sec. 3 22-29.) Also, it is easier to remember how to find all solutions if you use graphs, so I am providing some examples and additional practice exercises. Do as many of these as needed in order to learn the material well.

2.2 & 2.3 Supplement # 1, 3, 7, 11, 13, 17, 19, 23, 27, 35, 39, 42, 44, 47, 53, 55

**Chapter 2, Section 4:** (Main idea: Applications of Right Triangles)

Significant digits. p. 68-69. Read this very carefully. It is important to carry as much accuracy is possible through all calculations and then, at the end, to not report results as more accurate than is appropriate.

YOU make a sketch for EVERY applied problem. p. 71. In the textbook, many problems are described in words and also with a diagram. In most cases, you should be able to draw the diagram yourself from the words alone. PRACTICE doing that and use the diagrams given in the text to check yourself. If you do not learn to draw the diagrams yourself from the words, you will not be able to correctly work the problems on the tests and in the later part of the course. If you have trouble with that, you should practice additional problems like this – at least the sketch. Most students who are not native English speakers find that extra practice on these is necessary.

While it isn't required, some students will benefit from using a protractor and ruler to make accurate drawings (in terms of distances and angles) rather than just informal sketches. Such accurate drawings can be used to estimate the answers fairly accurately and this provides an excellent way to check your computational work.

2.4: # 1,4,6,9,15,19,35,37,43,46,49

**Chapter 2, Section 5:** (Main idea: More applications, including bearing)

Here you must use all the ideas from the previous section as well as a couple of new ideas.

Again, be sure to use significant digits correctly and to make fairly accurate diagrams so that you can determine whether your answers are reasonable.

There are two ways of specifying bearing. Be sure to understand both.

Sometimes people give bearing in words, without numbers. For instance the bearing "Northeast" when used precisely in a math problem, means halfway between north and east, so that is  $N 45^{\circ} E$ .

Problems with two important unknown values may require setting up two equations, as in Example 4. Look carefully at the overview here so that you understand why each step is being done.

2.5: # 1,2,7,13,15,16,17,21,27,32

**Chapter 2 Test:**

Follow the same instructions as for the Chapter 1 Test.

Chapter 2 test: 1 – 14

Extra work: As required by your studying – same instructions as for Chapter 1.

**Test 1 Review.**

Materials allowed for the test:

Page 1 of the class formula sheet, calculator, graph paper, ruler, blank paper.

How to Review:

1. For each Chapter test, number a piece of paper with 1 – 12 (or 1 – 14, as appropriate) and then read the test problems. Check each that you are sure you know how to solve. (You don't have to solve any of the problems here.)
2. For each of the problems you didn't know how to solve, review your answer when you worked that Chapter test last week (or whenever you did it.)
3. For each of the problems you missed when you worked that Chapter test last week, review the additional work you did on that type of problem.
4. Look over your homework cover sheets for sections where you had the most problems for which you had to look at examples or get help as you were working the problems. Do a few problems from those sections.