Week 6 Practice Worksheet

Right Triangles and Non-right Triangles

1. a. Find the exact value of all six trig functions for the angles A and B in the triangle in Figure 1. (The triangle may not be drawn to scale.)

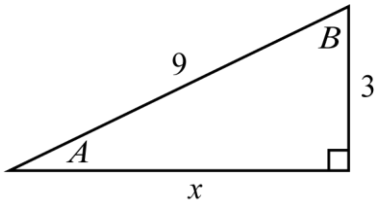

Figure 1

b. Solve the triangle in Figure 1 by finding approximate measurements (in degrees) of angles A and B and the exact length of the side x.

2. a. Find the exact value of all six trig functions for the angles θ and ϕ in the triangle in Figure 2. (The triangle may not be drawn to scale.)

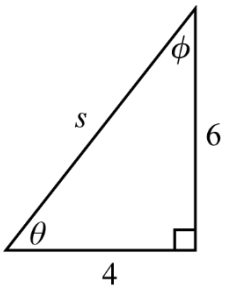

Figure 2

b. Solve the triangle in Figure 2 by finding approximate measurements (in degrees) of angles θ and ϕ and the exact length of the side s.

3. Find the values of c, A, and B in the triangle in Figure 3. You should approximate the values (in degrees for the angles) and denote your approximations correctly. (The triangle may not be drawn to scale.)

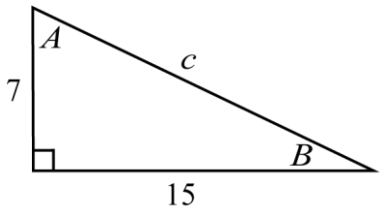

Figure 3

4. Find the values of p, q, and θ in the triangle in Figure 4. You should approximate the values (in degrees for the angles) and denote your approximations correctly. (The triangle may not be drawn to scale.)

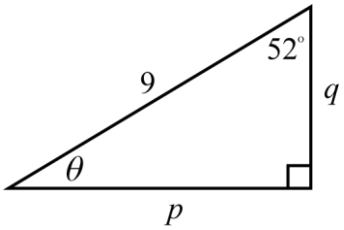

Figure 4

5. Find the values of z, X and Y in the triangle in Figure 5. You should approximate the values (in degrees for the angles) and denote your approximations correctly. (The triangle may not be drawn to scale.)

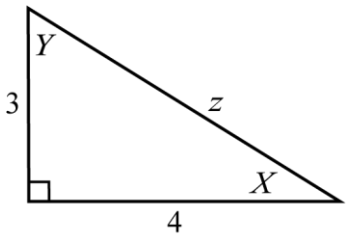

Figure 5

6. Find the values of b, A, and B in the triangle in Figure 6. You should approximate the values (in degrees for the angles) and denote your approximations correctly. (The triangle may not be drawn to scale.)

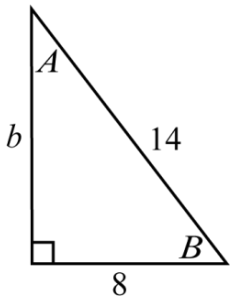

Figure 6

7. In parts (**a**) – (**i**), you are given some info about a non-right triangle that has sides a, b, and c and angles A, B, and C oriented as shown in Figure 7. Find the length of the missing side(s) and the measure of the missing angle(s). (You'll need to use the Laws of Sines and Cosines which are included on the Identities and Formulas Reference Sheet that will be provided to you during the Final Exam so you don't need to memorize them.) You should approximate the values (in degrees for the angles) and denote your approximations correctly. [You'll need your own paper to work these problems.]

a. $a = 5$, $b = 6$, $c = 7$

b. $B = 76^\circ$, $a = 8$, $c = 6$

c. $B = 118^\circ$, $C = 37^\circ$, $a = 5$

d. $A = 62^\circ$, $B = 70^\circ$, $b = 10$

e. $A = 64^\circ$, $C = 76^\circ$, $b = 9$

f. $C = 40^\circ$, $a = 9$, $b = 13$

g. $A = 40^\circ$, $a = 11$, $c = 8$

h. $A = 28^\circ$, $a = 7$, $c = 12$ (this is an "ambiguous situation" where there are two possible triangles that satisfy the given information: try to find both of the solutions)

i. $C = 67^\circ$, $a = 8$, $c = 5$ (this is an "impossible situation" where there is no triangle that satisfies: try to figure out why it is impossible)

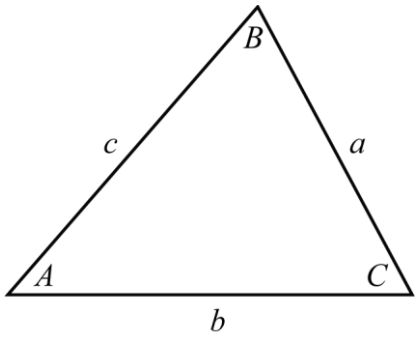

Figure 7

8. As you know, a triangle has three sides and three angles: these are the "six components of a triangle." Notice that in each part of the previous problem (#7) you are given the measurements of **three** of these six components. Sometimes (like in part (a)) you are given the lengths of all three sides; usually you are given a combination of sides and angles; but you aren't ever given all three angle measures: contemplate, discuss, and explain why.