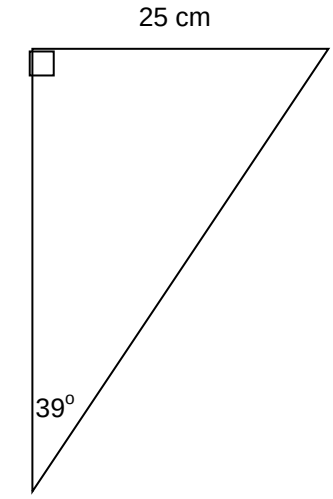
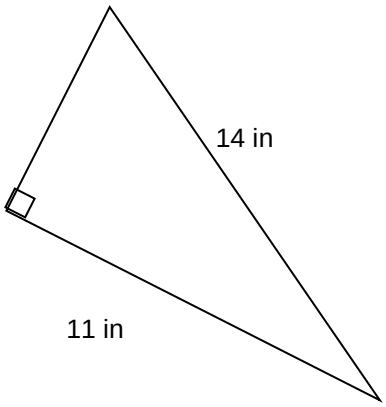
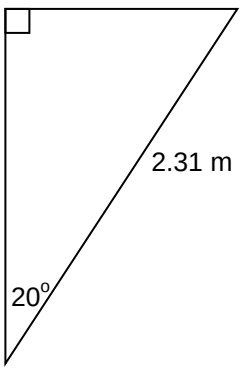
Lab 5: Right Triangle Trig

In this lab, you'll be solving right triangles and using right triangle trig to answer application questions. For the three triangles on this page, you should solve them completely. This means you should find the measures of all angles (*in degrees, rounded to one place*) and the lengths of all sides (*with appropriate units, rounded to two places*) that are not given to you. But don't round until your final step in each case! **You must show your work to receive credit**.

Each of these problems is worth 6 points, 2 for each value you must find. You'll only earn one if you have the correct number but are missing a unit or symbol, or don't follow rounding instructions. This lab is worth a total of 30 points, with a breakdown for the remaining problems on the next page.







Each part of the first question on this page is worth 4 points, and the second question is worth 4 points. You'll lose 1 point for a minor math error, 2 if you make a fairly major math error or but still overall indicate that you know how to attack the problem, and 1 if you demonstrate some understanding of this type of problem, but are clearly not using an appropriate strategy. Again, you must show your work for credit.

A water tower is located x = 300 feet from a building. From a window in the building, an observer notes that the angle of elevation to the top of the tower is 39° and the angle of depression to the bottom of the tower is 25°. See the picture at the bottom of this page.

a) How tall is the tower, to the nearest foot?

b) How high is the window, to the nearest foot?

When driving across flat land, you see a mountain in front of you. The angle of elevation to the peak is 2.8°. When you drive 15 miles closer, the angle of elevation is 11°. Find the height of the mountain, to the nearest foot.