LAB 03 QUESTIONS

QUESTION 1

Open the right triangle grapher. The initial measure of angle *CAB* is 57.17º. ***Use the lengths of sides in the figure*** and the definition of the cosecant function as a ratio to calculate csc(57.17º). Report your answer correct to 3 decimal places.

1 points

QUESTION 2

Continue using the right triangle grapher. How long is the hypotenuse of an isoceles right triangle whose sides are of length 4 units? Drag the points *A*and *B* to decide. Give the answer correct to the nearest hundredth.

1 points

QUESTION 3

Keep using the right triangle grapher. Suppose we want the measure in degrees of the smallest angle in a 5-12-13 right triangle. Give the number of degrees correct to the nearest tenth of a degree.

1 points

QUESTION 4

"Solving" a right triangle involves giving all angle measures and side lengths, once you are given some partial information. Eventually we will learn how to solve an arbitrary triangle analytically, but with the figure in the right triangle grapher you can recover missing information for the right triangle directly, by adjusting the positions of the points *A*, *B*, and *C*. Adjust the figure to find the length of the hypotenuse if *AC* (side *b* in the figure) is 2.7 inches and angle *CAB* is 61.0º. Report the length to as many decimal places as the figure provides.

1 points

QUESTION 5

"Solving" a right triangle involves giving all angle measures and side lengths, once you are given some partial information. Eventually we will learn how to solve an arbitrary triangle analytically, but with the right triangle grapher you can recover missing information for the right triangle directly, by adjusting the positions of the points *A*, *B*, and *C*. Adjust the figure to make *AC* (side *b* in the figure) 2.75 inches and angle *CAB* 50.0º. Find the measure of the other acute angle in degrees. If you can't make the figure exactly match the information given, use what you know about triangles to answer the question.

1 points

QUESTION 6

How about the tangent of 90°? What problem arises
with the ratio defining the tangent function when angle *CAB* gets larger
and larger, approaching 90°? Explain the situation in a sentence.

- The length of side a gets arbitrarily large, making the ratio approach infinity.
- The length of side b goes to zero, making the ratio approach infinity.
- The length of the hypotenuse approaches the length of side a, making the ratio approach 1.
- The length of side b approaches the length of side a, making the ratio approach 1.
- The length of side b and the length of side c become closer in value, making the ratio approach 1.

1 points

QUESTION 7

Open the graphing utility. Graph the function tan(x). How does the problem in question 6 show up as a feature of the function graph?

- The tangent function graph has an x intercept at 90°
- The tangent function graph has a value of 1 at 90°
- The tangent function graph has a vertical asymptote at 90°
- The tangent function graph has a horizontal asymptote at 90°
- Problem? There is no problem. Just chill out, dude.

1 points

QUESTION 8

Back to the right triangle grapher. Study limiting ratios in the figure to decide what value should be assigned to sec(0°).

1 points

QUESTION 9

Use the Windows calculator to answer this question if your graphing calculator does not support "grad" mode for measuring angles. Besides degrees and radians, another measure of angle size that is sometimes used is the *grad*. Scientific calculators often allow you to specify *deg*, *rad*, or *grad* as a mode for doing trigonometric calculations. If your calculator doesn't support grads, the Windows calculator in scientific view does. Perform the following experiment to figure out the relationship between the different ways of measuring angles. Pick a convenient angle in degrees (say 45) and calculate the sin of the angle. Now set the calculator to grad mode and find the smallest positive grad measure of the angle that works to give a matching value of the sin function. Scale your answer up to decide how many grads there are in a complete revolution, corresponding to 360°.

2 points