Geometry
Geogebra:- Right Triangle Trigonometry

1. [cm arrow tool icon] Measure the length of legs $\overline{AB}$, $\overline{AC}$, *and hypotenuse* $\overline{BC}$

2. Determine the ratios $\dfrac{opposite}{hyp}$, $\dfrac{adjacent}{hyp}$, and $\dfrac{opposite}{adjacent}$ by:

+ Line	
+ Point	
+ Segment	
+ Triangle	
+ Input...	
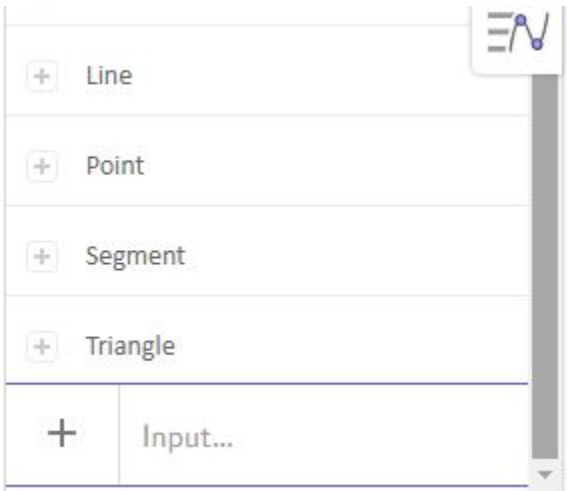
   a. go to the calculating feature on the left side

   b. type: = opposite / hyp

   c. type: = adjacent / hyp

   d. type: = opposite / adjacent

3. Find these measures in the calculating column. Using the point tool, grab point C and change the angles of the triangle.

   Question 1 (questions are found in Geogebra): Do the ratio of the sides stay the same or change when the angles change?

4. Now grab angle A and change the size of the triangle. The angles should stay the same.

   Question 2: Triangles who have congruent corresponding angles are_____.

   Question 3: Do the ratio of the sides stay the same or change when the angles stay the same?

5. [angle measure tool icon] Measure $\angle$B

6. Right click on this measure and "Rename" as: B

7. Let's now look at the trig functions of ∠B and see how they relate to the side lengths and ratios.

   a. Go to the calculating feature on the left side

   b. type: = tan(B)

   c. type: = sin(B)

   d. type: = cos(B)

8. Find these measures in the calculating column. Using the point tool, grab point C and change the angles of the triangle. You should see these 3 values somewhere else in the calculating column.

These are the definitions of three of the trig functions. Through similar right triangles, we can predict the ratio of the sides given an acute angle. Discover these relationships:

Question 4: Sin(∠) = $\dfrac{opposite}{hyp}$, $\dfrac{adjacent}{hyp}$, or $\dfrac{opposite}{adjacent}$?

Question 5: Cos(∠) = $\dfrac{opposite}{hyp}$, $\dfrac{adjacent}{hyp}$, or $\dfrac{opposite}{adjacent}$?

Question 6: Tan(∠) = $\dfrac{opposite}{hyp}$, $\dfrac{adjacent}{hyp}$, or $\dfrac{opposite}{adjacent}$?

Write these definitions in your notebook.