SINE, COSINE, AND TANGENT

Now you know that there are mathematical functions that give us information about the relationships between angle and side measures in a right triangle, but we still don't really know much about them. You will work with your group to define the three main trigonometric functions: **sine**, **cosine,** and **tangent**. Follow the instructions below carefully, making observations and recording them in your notebook.

1) The triangle below should look familiar. Refer to it during this investigation. Also, please retrieve a scientific calculator–each person in your group should have one.
2) Locate on your calculator the keys that say SIN, COS, and TAN. These refer to the trigonometric functions sine, cosine, and tangent.
3) Using your calculator, determine the results of using the functions sine, cosine, and tangent on the angles in the below triangles. Use a chart like the one below to record your information.

Triangle Name	Reference Angle Measure	Sin	Cos	Tan
Ex. ΔROM	Angle O = 33°	sin(33) = 0.54	cos(33) = 0.84	tan(33) = 0.65
1. ΔGAB	21°			
2.	21°			
3.	21°			
4. ΔGAB				
5. ΔFAC				
6.				
7. ΔGAB				
8.				
9. ΔEAD				

4) Compare this chart to the one you made during the Right Triangle Relationship investigation. Record your observations.
5) As a group, make hypotheses about the definitions of sine, cosine, and tangent.
6) Make a general definition with your group (*Hint: think about what you would use to find sin A in the triangle below and then cos A and tan A*).
7) Test this hypothesis by repeating the sine, cosine, and tangent chart using the other special-case right triangle you tested in the Right Triangle Relationship investigation.