

Discovering Trigonometric Ratios

Materials needed: Protractor, ruler

Instructions:

PART I: Your page has a right triangle (each person in the group has a different size triangle)

- 1) Sides of triangles could be named by their endpoints (segment AB, etc.). Sides of right triangles can also be named based upon their relative position to a specific angle. Using this naming method, we ***always*** refer to the hypotenuse as the “hypotenuse.” Using Angle-A as the reference angle, we can name the sides as “Opposite of A,” “Adjacent to A,” and “Hypotenuse.”

Measure the lengths of the segments of your triangles and fill in the table.

Table 1	Segment	New Name	Person 1	Person 2	Person 3
	BC	Opposite of A			
	AC	Adjacent to A			
	AB	Hypotenuse			

- 2) Measure angle A using a protractor. Record your measurements in the table below.

Table 2		Person 1	Person 2	Person 3
	$m\angle A$			

- 3) Use your knowledge of triangles and the *Triangle Sum Theorem* to fill in the table below.

Table 3		Person 1	Person 2	Person 3
	$m\angle B$			

- 7) Are the triangles in your group similar? _____

- 8) What triangle similarity theorem proves this? _____

- 9) Group leaders:

1. Calculate the ratios of the sides for each person in your group and fill in your numbers into the following table.
2. Calculate an average value for each column.
3. Bring this completed table to me so that I can display everyone’s numbers on the projector.

Measure of Angle A = _____

	$\frac{\textit{Opposite}}{\textit{hypotensue}}$	$\frac{\textit{adjacent}}{\textit{hypotenuse}}$	$\frac{\textit{opposite}}{\textit{adjacent}}$
Person 1:			
Person 2:			
Person 3:			
Average			