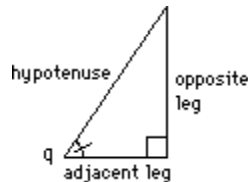


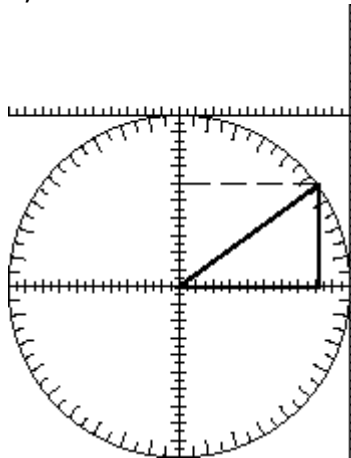
RATIOS INVOLVING THE HYPOTENUSE

In the previous two activities, we were working with three numbers: the two legs of a right triangle (which we thought of as rise and run) and an angle. Given any two of those, it was possible to find the third. However, in some right triangle situations, the three numbers you need to deal with could be the hypotenuse, one leg, and an angle. To address such problems, we will use two ratios involving the hypotenuse:

$$\frac{\text{adjacent leg}}{\text{hypotenuse}} \text{ and } \frac{\text{opposite leg}}{\text{hypotenuse}}$$



Using your ten-centimeter circle, find these ratios and angles and fill out the tables.



q	opp/hyp	adj/hyp
0°		
15°		
30°		
45°		
60°		
75°		
90°		

opp/hyp	q
0	
.2	
.4	
.6	
.8	
1	

adj/hyp	q
0	
.2	
.4	
.6	
.8	
1	

DISCUSSION

- A.** When filling out the tables, look for patterns. What is the relationship between the ratios for complementary angles? For what angles do we have ratios of 0? 1?
- B.** Some of the triangles you used to fill out the tables are "famous right triangles". Check that the angles and ratios you found are correct.
- C.** Can the opp/hyp ratio, or the adj/hyp ratio be greater than 1? Explain.

<http://www.picciotto.org/math-ed/circle/hyp-ratios.html>

Adapted from Geometry Labs, by Henri Picciotto (Key Curriculum Press)