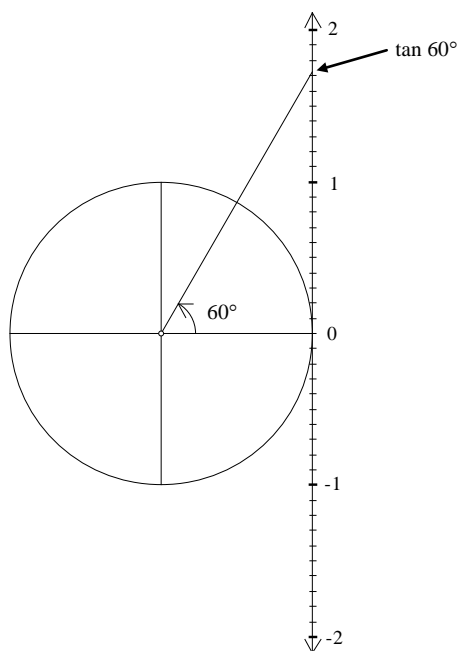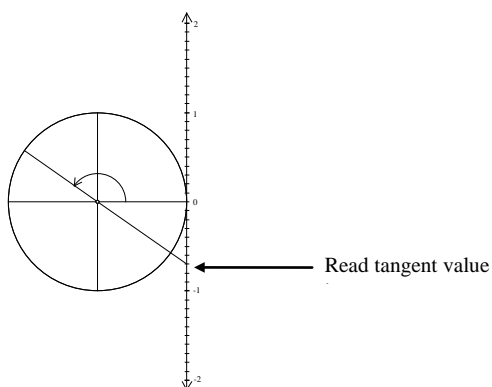# THE TANGENT LINE

The number line on the right of the unit circle below is known as 'the tangent line'.
An angle of 60° has been drawn in the circle and extended to hit the tangent line. The value where the angle's extended arm hits the tangent line is called the 'tangent of 60°', or tan 60° for short. We can see that tan 60° is a little over 1.7 on the tangent line.

To find the tangent of an angle in the second quadrant of the unit circle, we would have to extend an angle arm back in the opposite direction, as shown below (left).

Angle	Tangent
0°	
15°	
30°	
etc.	

1. Construct an extended version of the table above, listing angles from 0° to 360° in steps of 15°. Use the special Unit Circle worksheet provided by your teacher to determine tangent values.

2. Check your answers to question 1 using a calculator.

3. Were there any angles for which you were unable to state a tangent value using the tangent line? If so, why?

4. Extension: Produce a graph of tan x (vertical axis) versus x.

The Unit Circle