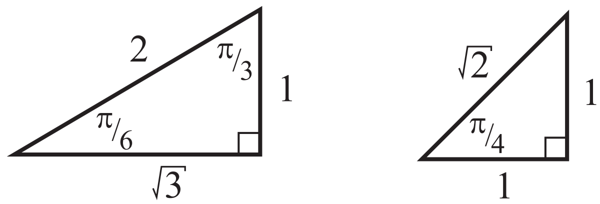
Evaluating trigonometric functions of common angles

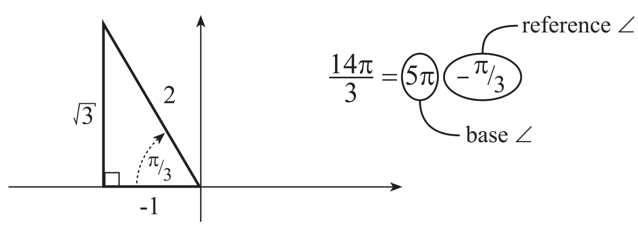
- Angles will always be measured in radians; 2π radians make a full circle, so you can convert degrees to radians by multiplying your angle by $\frac{2\pi}{360}$.
- Remember the geometric definitions of the three basic trig functions (soh-cah-toa), as well as their values for a point (x,y) on the *unit circle*:

$\sin\theta = \frac{\text{opp}}{\text{hyp}}$, or "$y$"	$\cos\theta = \frac{\text{adj}}{\text{hyp}}$, or "$x$"	$\tan\theta = \frac{\text{opp}}{\text{adj}}$, or "$y/x$"

- Also, remember that the tangent of an angle θ equals the slope of a line at counterclockwise angle θ from the x-axis.
- Know these two triangles:



- To evaluate a trig function of some angle:
  - First, find the closest whole multiple of π. This is your *base angle*; odd multiples of π mean leftward along the x-axis, even multiples mean rightward.
  - Next, subtract the base angle from your angle. This is your *reference angle*; as always, a positive angle goes counterclockwise, a negative one clockwise.
  - Start at your base angle and move in the direction of your reference angle;
    - → If you end up on an axis, plot the point on the unit circle and read off the trig function in terms of x and y.
    - → If not, fit the matching triangle into the wedge and read off the trig function from the triangle (remember: right and up are *positive*, left and down are *negative*).



- From the values of sin, cos, and tan, you can find the other three trig functions as below:

$\csc\theta = \frac{1}{\sin\theta}$	$\sec\theta = \frac{1}{\cos\theta}$	$\cot\theta = \frac{1}{\tan\theta}$