MATHEMATICIAN	DATE	BAND

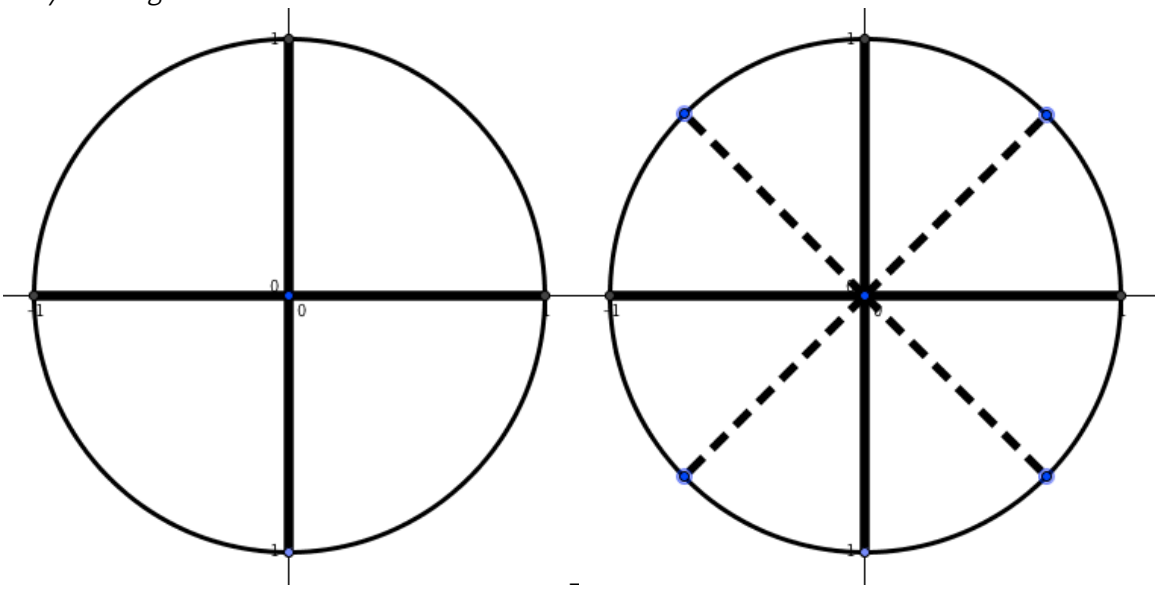
BASIC TRIGONOMETRY #2

PRECALCULUS | PACKER COLLEGIATE INSTITUTE

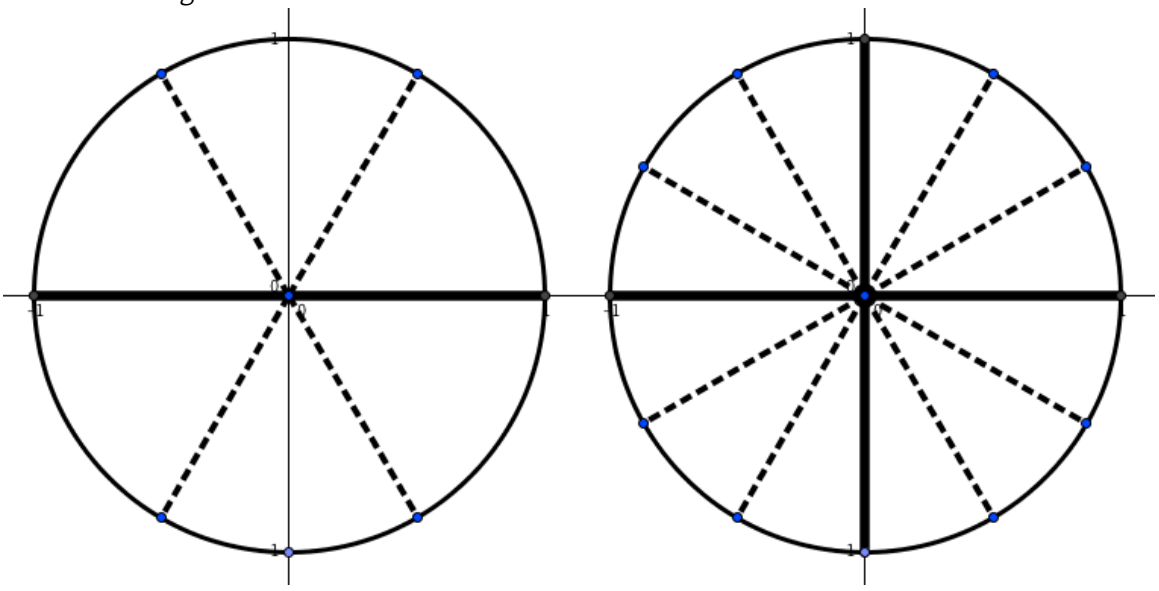
Section 1: Becoming Experts with Angles

The best advice I can give you… Find π radians. Then think how many slices you are chopping the *top part* of the pizza into. Two? Four? Three? Six? Then you can find all the angles for free – from that!

Easy-ish Angles



Harder-ish Angles



Now practice identifying your angles using the Angle geogebra sheet!

To be totally fair, there are so many more angles besides these "special angles." But we'll see them enough that you should be comfortable with them.

Section 2: Becoming Experts with Coordinates / Sine / Cosine

Once you become a master at identifying angles, you should become a master at coming up with coordinates on the unit circle corresponding to that angle. *If you know the side lengths for your special right triangles with a hypotenuse of 1, you're set!*

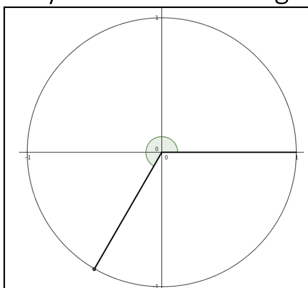
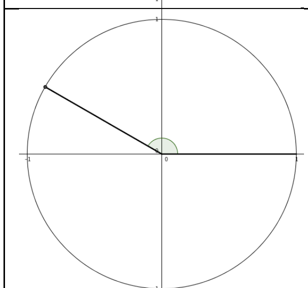
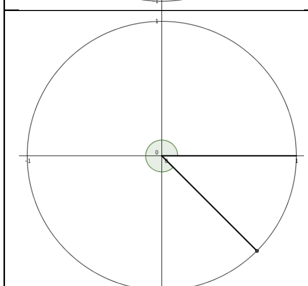
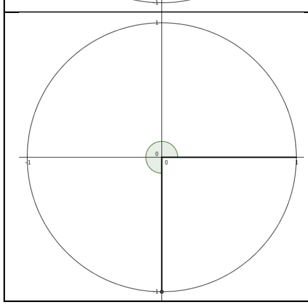
For a $45^o, 45^o, 90^o$ [in radians: $\pi/4, \pi/4, \pi/2$] right triangle, the two legs have the same length.
The length of each leg is _________.

For a $30^o, 60^o, 90^o$ [in radians: $\pi/6, \pi/3, \pi/2$] right triangle, the two legs have different lengths.
The longer length is: _________ and the shorter length is _________.

Now you simply have to *look* at the point to figure out the coordinates.
Think about the following:

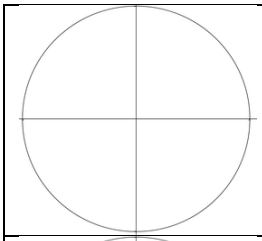
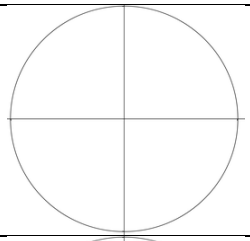
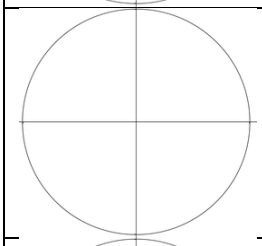
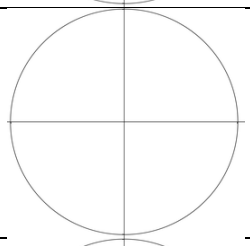
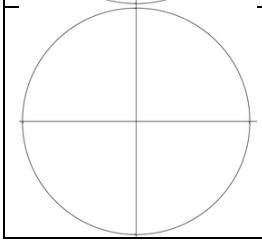
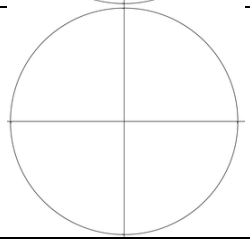
1. Which leg is longer?
2. Is the x-coordinate positive or negative? Is the y-coordinate positive or negative?

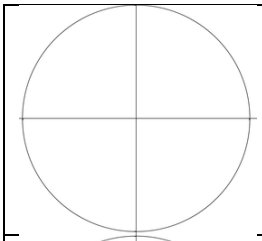
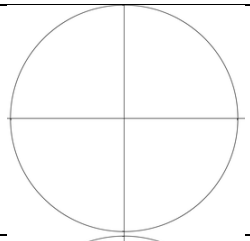
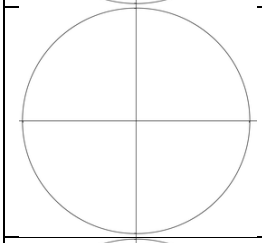
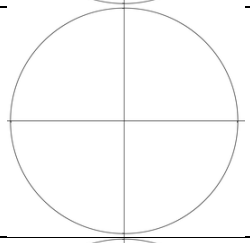
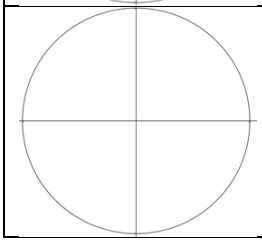
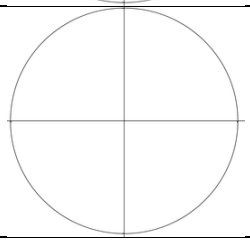
Try it out! All the angles drawn below are *special angles*.

	Angle [degrees and radians]: $\theta =$ ____ degrees or _____ radians Coordinates: $($____, ____$)$ $\cos(\theta) =$ ____ and $\sin(\theta) =$ ____
	Angle [degrees and radians]: $\theta =$ ____ degrees or _____ radians Coordinates: $($____, ____$)$ $\cos(\theta) =$ ____ and $\sin(\theta) =$ ____
	Angle [degrees and radians]: $\theta =$ ____ degrees or _____ radians Coordinates: $($____, ____$)$ $\cos(\theta) =$ ____ and $\sin(\theta) =$ ____
	Angle [degrees and radians]: $\theta =$ ____ degrees or _____ radians Coordinates: $($____, ____$)$ $\cos(\theta) =$ ____ and $\sin(\theta) =$ ____

Now practice identifying your angles using the Angle geogebra sheet!

Now we're going to do this backwards. I am going to give you the angle, and you're going to need to give me the coordinates on the unit circle associated with that angle. **My best advice is to draw the angle fairly accurately – and use the same logic as above.**

 Angle: $\frac{1}{3}\pi$ Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$	 Angle: $\frac{4}{3}\pi$ Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$
 Angle: $\frac{7}{4}\pi$ Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$	 Angle: $\frac{11}{6}\pi$ Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$
 Angle: $\frac{3}{2}\pi$ Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$	 Angle: $\frac{5}{3}\pi$ Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$

 Angle: 90^o Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$	 Angle: 210^o Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$
 Angle: 330^o Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$	 Angle: 150^o Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$
 Angle: 315^o Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$	 Angle: 225^o Coordinates: $(\_\_\_\_,\_\_\_\_)$ $\cos(\theta) = \_\_\_\_$ $\sin(\theta) = \_\_\_\_$