# Constructing The Unit Circle

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# Overview

- What the Unit Circle is
- How Degrees and Radians relate
- Finding Radians and Coordinates
- How Trigonometric functions relate to the unit circle

# What Is The Unit Circle

We have a blank graph with four empty quadrants. If I apply this special equation, $x^2+y^2=1$, we get a circle of 360°with radius 1. A Fun fact is that if we measure the distance from the origin to any point on the circle, the radius is 1. If we take that same radius and detach and curve it, duplicating it three times will give us almost the full distance around a single hemisphere of this circle. After performing a few calculations, we can see that the space missing in between the midway mark on the unit circle and where our set of curves end is approximately 0.14 units long. Thus it is safe to say that it takes 3.14 units to complete a full hemisphere. Which implies that it will take 2 revolutions of Pi measures to travel around the entire unit circle.

# What Is The Unit Circle

Since we know that the distance around the unit circle is 360°and that is the equivalent to 2 Pi, If we were to divide 360°by 2 we will have 180°. If we divide 180°by 2 we will have 90°as well as 270°, being a midpoint between 180°and 360°.

# How Degrees and Radians Relate

- In order to get accurate radian measures, we must convert our degrees. Using our (Degrees/180)(Pi). If we wanted to go from radians back to degrees, we would simply use our (Radians/Pi)(180).
- What is positive in each quadrant:
- All trig functions are positive
- Sine is positive in the second quadrant
- Tangent is positive in the third quadrant
- Cosine is positive in the fourth quadrant