Hind Ali

Math 304

* Mathematical Topic: Trig Functions: Unit Circle
* General Purpose: to define the Unit Circle and describe how it used for.
* Overview: Discuss the Unit Circle and its properties
* Learning Objective/Common Core State Standard: CCSS.MATH.CONTENT.HSF.TF.A.2

Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.

* Grade level(s): 9, 10, 11, 12
* Background knowledge required of students:

Right Triangle Trigonometry

* Time: 10 minutes
* Materials needed: unit circle graph paper and colored pencils
* Type of activity: “the Unit Circle”
* Why I picked this activity:

To explain to students that the point of the unit circle is that it makes other parts of mathematics easier and neater. It used to simplify computations, mathematicians like to fit an angle's triangle into a circle with radius r = 1. Once the hypotenuse has a fixed length of r = 1, then the trig ratios will depend only on x and y, since multiplying or dividing by r = 1 won't change anything. Only the values of x and y will matter.

* Follow-up activities/extensions:

Discuss how to find the rest of the radians, discuss how to find sin, cos, & tan for all

* Weaknesses/limitations of activity: No weaknesses.
* Procedure:

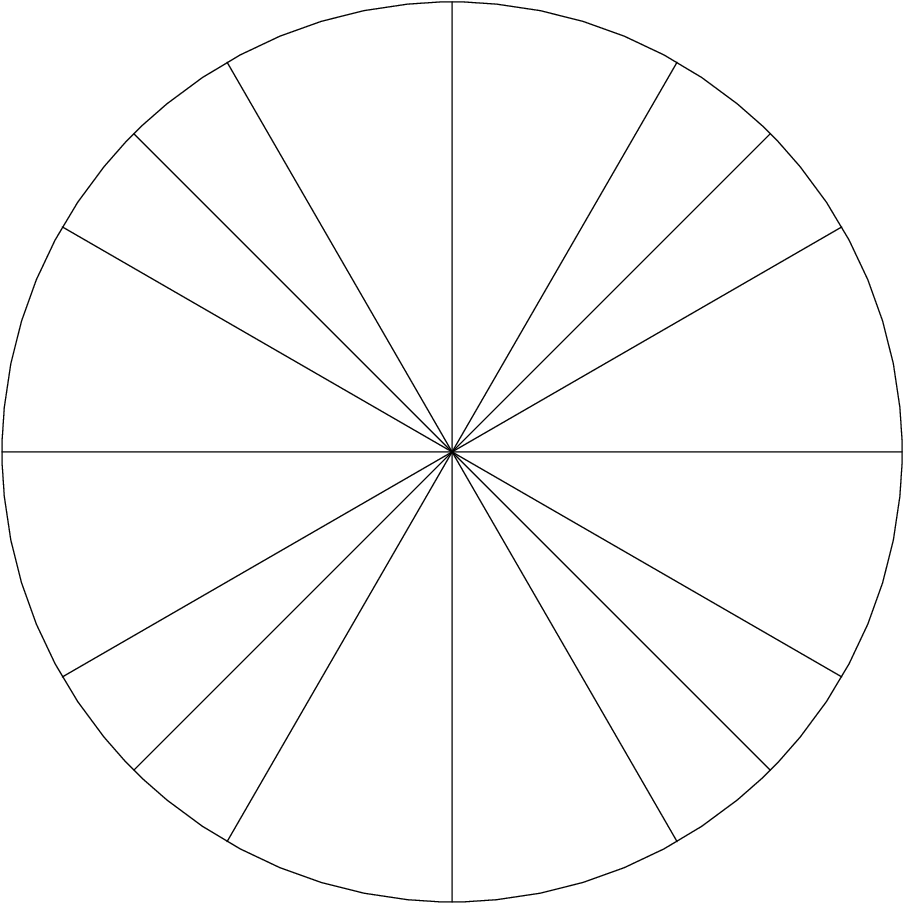
1) Give each student a copy of the circle worksheet

2) Explain the properties of the Unit Circle: has a radius =1, Circumference = 2π

3) Teacher can guide students in finding the radians for the circle (may want to just do the x and y-axis and the multiples of π/4

* Source: <http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46782>

Unit Circle Activity

[](http://img.docstoccdn.com/thumb/orig/24851022.png)