Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **Converting Degrees to Radians HW 2016-2017**

**1.** Explain how arc length is used to convert degrees to radians. Use the conversion of 210ᵒ to $\frac{7π}{6}$.

**2.** Explain how arc length is used to convert degrees to radians. Use the conversion of 270ᵒ to $\frac{3π}{2}$.

**3. In the circle with center C, with the central angle ACD measuring** $\frac{5π}{6 }$ **radians complete the following:**

**a**. Sketch the angle.

**b.** Shade in the portion of the circle which is $\frac{5π}{6 }$ radians.

Is the shaded region larger or smaller than $π$ radians.

**c.** What fraction of the area of circle has been shaded?

Explain how you came to fine your answer mathematically.

**4. In the circle with center C, with the central angle ACD measuring** $\frac{7π}{4 }$ **radians complete the following:**



**a.** Sketch the angle.

**b**. Shade in the portion of the circle which is $\frac{7π}{4 }$ radians.

Is the shaded region larger or smaller than $π$ radians.

**c.** What fraction of the area of circle has been shaded?

Explain how you came to fine your answer mathematically.

**With the unit circle having the radius of one unit, finding the arc length is converting the degrees to radian measure**

**5.** Convert the central angle with measure 135$°$ to radians.

**6.** Convert the central angle with measure 330$°$ to radians.

**7.** Convert $\frac{2π}{3}$ radians to degrees.

**8.** Convert $\frac{3π}{4}$ radians to degrees.

**9.** Convert $\frac{π}{2}$ radians to degrees.

**10.** Convert $\frac{π}{3}$ radians to degrees.

**11.** The traditional method of converting radians to degrees is to multiply the radian by $\frac{180}{π}$. Explain WHY this method works.