Lesson 7-2 Sectors of Circles

1. What is the equation for the Arc Length of any Sector? Use theta for the angle and *s* as the length of the arc.

2. Derive the equation for Arc Length from degrees to radians.

3. What is the equation for the Area of any Sector? Use theta for the angle and K as the area of the sector.

4. Derive the equation for the Area of a Sector from degrees to radians.

5. Let's simplify the radian equation a little more by using system of equations.

Apparent Size of an Object

6. At its closest approach, Mars is about 5.6×10^7 km from the Earth and its apparent size is about 0.00012 radians. What is the approximate diameter of Mars?

<u>**Section 7-2: Day 2**</u>

1. Use the blank side of the unit circle and fill out the degrees and radians. You do not need to fill in the parentheses.

2. Convert $80°$ to radians. Simplify as a fraction.

3. Convert 8 radians to degrees. Round to the nearest tenth place.

4. Draw a circle with a sector that has a radius of 6 units and a central angle measure of $\dfrac{\pi}{3}$. Find the arc length and the area of the sector.

5. Draw a circle with a sector that has a radius of 4 units and a central angle of $45°$. Find the arc length and area of the sector.

6. A sector of a circle has an area of $90cm^2$ and a central angle of 0.2 radians. Find its radius and arc length.

7. A sector of circle has a perimeter of 12 cm and area of $8cm^2$. Find all possible radii.