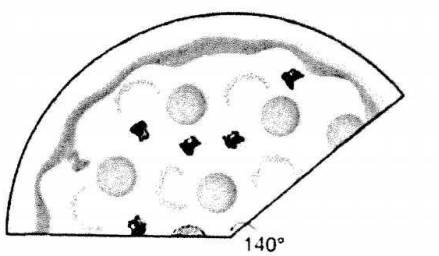
4.2 Practice: Arc Length, Area of a Sector, & Dimensional Analysis

1) Lilly baked a circular pizza with a 14-inch diameter. When she finished eating, the remainder of the pizza had a 140° central angle. What is the area of the leftover pizza?



2) Given the sector with a radius of 1 cm and the central angle of 70 radians.

a) Determine the arc length.

b) Determine the area.

3) Given the sector with an arc length of 2.5 cm and a central angle of $\frac{\pi}{3}$ radians.

a) Determine the radius.

b) Determine the area the sector.

4) Determine the measure of the central angle of a sector with an arc length of 4 inches and a radius of 7inches.

5) Central angle θ intercepts arcs s_1 and s_2 on two concentric circles with radii r_1 and r_2 respectively. Find the missing information.

$\boldsymbol{\theta}$	$\boldsymbol{r_1}$	$\boldsymbol{s_1}$	$\boldsymbol{r_2}$	$\boldsymbol{s_2}$
	11cm	9 cm	44cm	
	8 km	36 m		72 m

6) It takes ten identical pieces to form a circular track for a pair of toy racing cars. If the inside arc of each piece is 3.4 inches shorter than the outside arc, what is the width of the track?

7) Cathy Nguyen races on a bicycle with 13-inch radius wheels. When she is traveling at a speed of 44 ft/sec, how many revolutions per minute are her wheels making?

8) The Ford Taurus has a 215/60-16 tire which has a diameter of 26.16 It is unwise (and in some cases illegal) to equip a vehicle with a larger diameter than those for which it was designed. If a 2006 Ford Taurus were equipped with 28-inch tires, how would it affect the odometer (which measures mileage) and speedometer readings?

9) **Mechanical Engineering** A simple pulley with the given radius r used to lift heavy objects is positioned 10 feet above ground level. Given that the pully rotates $\theta°$, determine the height to which the object is lifted.

(a) r =4 in., θ =720°

(b) r = 2 ft, θ = 180°