Arc Length of Circle

Lesson 14

How do we use properties of circles to solve problems involving length of an arc of a circle?

Find the circumference of a circle with radius 11 feet.

What is the diameter of a circle with circumference 75 meters?

Page 224, Try problems 1, 2, 3

(McDougal Littell Math 2 textbook)

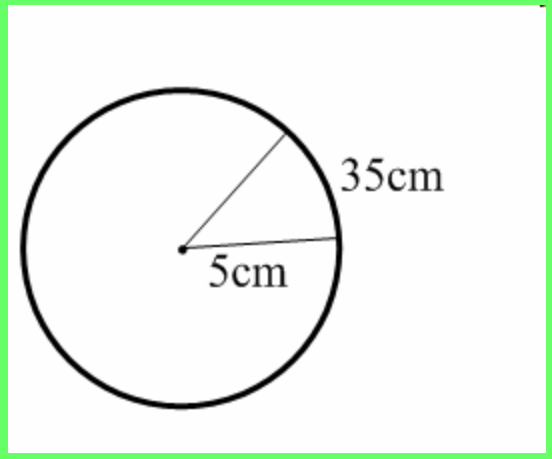
These problems involve:

** given a radius or diameter, find the circumference

** given a circumference, find the radius/diameter

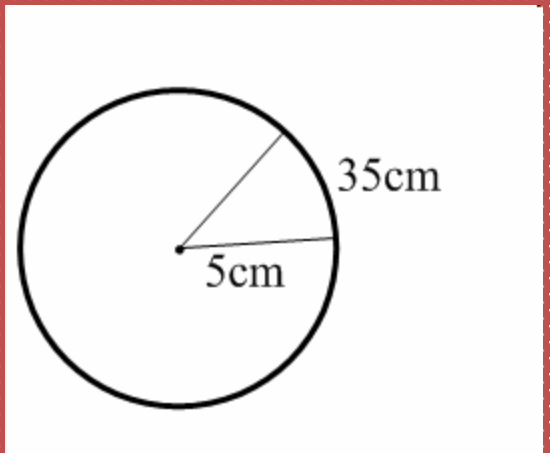
Discuss your results with your 2nd base partner

The length of an arc of a circle (A) is a fraction of the circumference of the circle.
(Teacher is to show fraction)



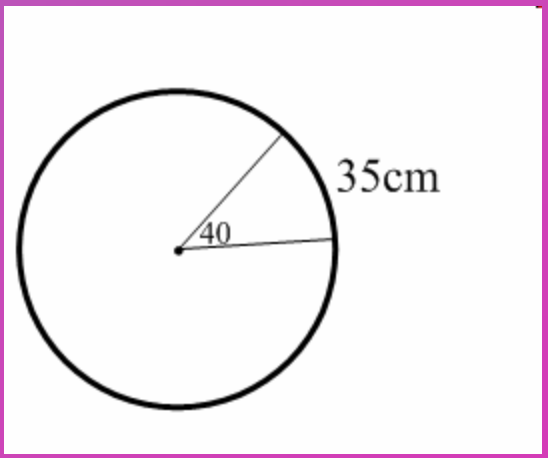
The ratio of the arc length to the circumference is equal to the ratio of the central angle (x) to 360

(Teacher is to show how to find the central angle)



Central angle (x) = $\frac{\text{arc length (A)} * 360}{\text{circumference}}$

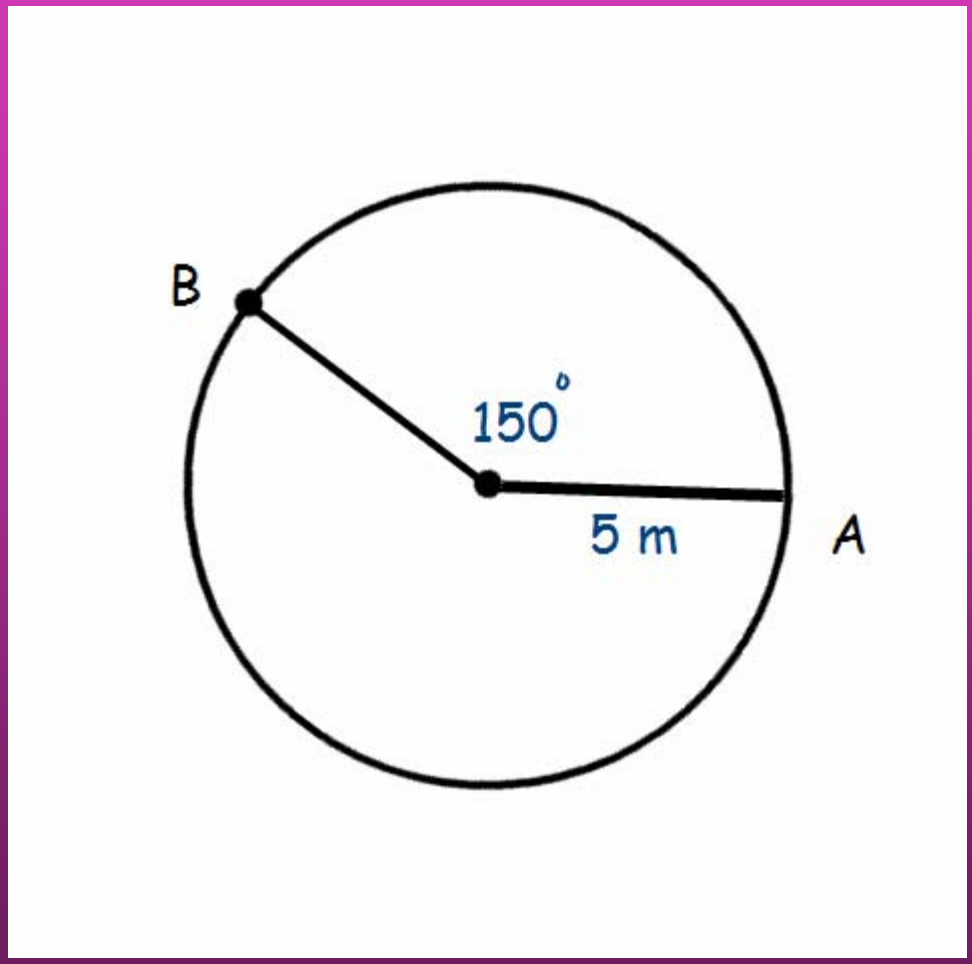
(Teacher is to
show the algebra of deriving the
Arc Length formula)



The arc length is equal to the ratio of the central angle to 360 multiplied by the circumference of the circle.

Arc length (A) = $\frac{central\ \ angle\ measure}{360} \bullet 2\pi r$

Find the length of $\overset{\frown}{AB}$.



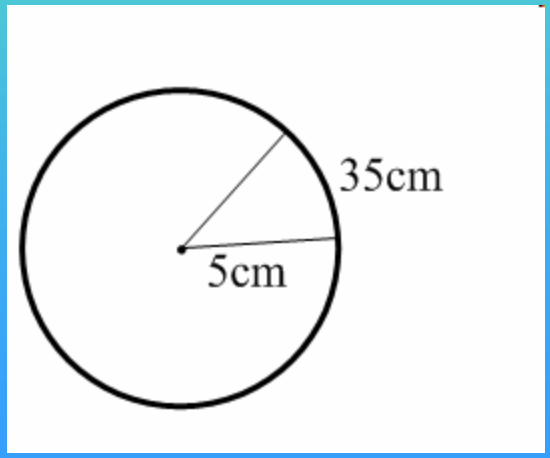
Page 225, Try problem 4,5,6

(McDougal Littell Math 2 book)
(Otherwise, use 3 other problems that involve given a central angle and a radius/diameter, find the arc length

Discuss your results with your 3rd base partner

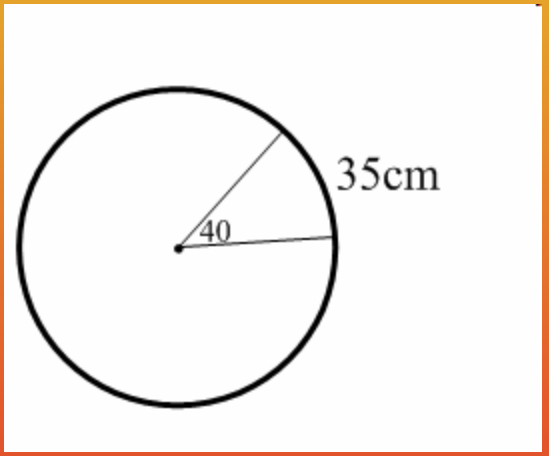
$$\text{Arc Length} = \frac{central\ \ angle\ measure}{360} \bullet 2\pi r$$

Teacher is to show
how to find the measure of the
Central angle (measure of
the arc in degrees) by using proportions



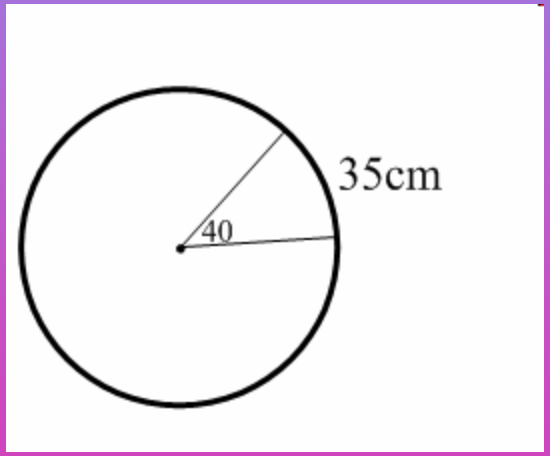
Arc Length = $\frac{central\ \ angle\ measure}{360} \bullet 2\pi r$

Teacher is to
Show how to find the measure of the radius by using proportions



$$\text{Arc Length} = \frac{central\ \ angle\ measure}{360} \bullet 2\pi r$$

Teacher is to
Show how to find the measure of the
circumference using proportions



Page 225, Try problem 7,8,9

(McDougal Littell Math 2 book)

(Otherwise, use 3 other problems that involve

(1) Find the central angle (arc measure in degrees) given radius & arc length
(2) Find the radius given central angle & arc length
(3) Find the circumference given central angle & arc length

Discuss your results with your 1st base partner