Lesson 31.1: Circumference and Arc Length

[Ex. 1: Use the formula for circumference]
*The circumference of a circle is the distance around a circle
C= 2(Pi)(radius) or C=(Pi)(diameter)

Find the indicated measure.
a) Circumference of a circle with radius of 11 feet

b) Diameter of a circle with circumference 75 meters

YOUR TURN
1) Find the circumference of a circle with a diameter of 16 inches

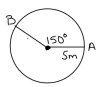
2) Find the radius of a circle with a circumference of 35 yards

3) Find the circumference of a circle with a radius of 4.5 centimeters

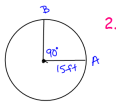
[Ex. 2: Find the arc length]
* An arc length is a portion of the circumference of a circle.

Arc Length Corollary: In a circle, the ratio of the length of a given arc to the circumference is equal to the ratio of the measure of the arc to 360 degrees. $\text{Arc Length} = \frac{\text{degrees}}{360^\circ} \cdot 2\pi r$

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



YOUR TURN Find the length of $\overset{\frown}{AB}$

1.


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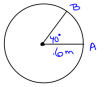

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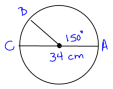
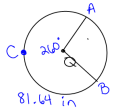


[Ex 3. Use arc lengths to find measures]

$$\frac{\text{Arc Length}}{\text{Circumference}} = \frac{\text{degrees of arc}}{360}$$

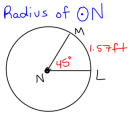
Find the circumference of circle Q



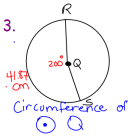
YOUR TURN

1. $m\overset{\frown}{AB}$

2. Radius of $\odot N$



3.



Circumference of $\odot Q$