Section [illegible] – Circumference

1. State the formula for the circumference of the circle. Write the formula in terms of the diameter and in terms of the radius.

2. Solve the following, leave all answers in terms of π

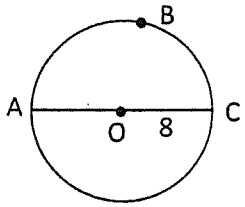
   a. A circle has center (2,2) and contains the point (4,0). Find the circumference.

   b. Find the diameter and radius of a circle with circumference 16.

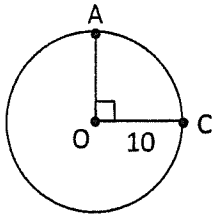
   c. Find the circumference of a circle that is circumscribed about a regular hexagon with side length 8.

Section [redacted] - Arc Length

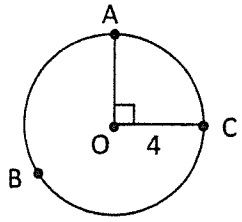
The ***length of an arc*** is a portion or fraction of the circumference of the circle. Try the following examples to generate a rule that would apply to finding the arc length of any circle.

1. 

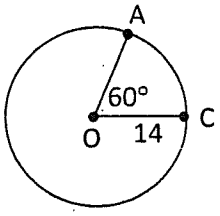
Length of $\overset{\frown}{ABC}$ = _____

2. 

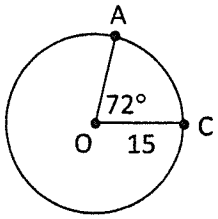
Length of $\overset{\frown}{AC}$ = _____

3. 

Length of $\overset{\frown}{ABC}$ = _____

4. 

Length of $\overset{\frown}{AC}$ = _____

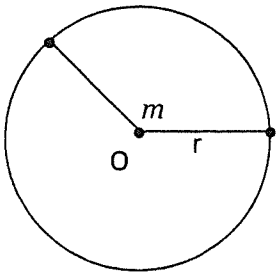
5. 

Length of $\overset{\frown}{AC}$ = _____

Use the diagram below to write a formula for find arc length.

m = measure of the central angle

r = radius of the circle

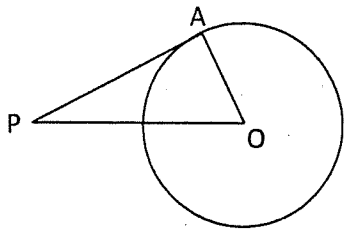


Circumference & Arc Length Problems

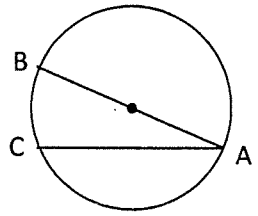
1. A Ferris wheel has diameter 42 ft. How far will a rider travel during a 4 minute ride if the wheel rotates once every 20 seconds? Us $\pi = \frac{22}{7}$.

2. Find the circumference of a circle that is circumscribed about an equilateral triangle with side length 6.

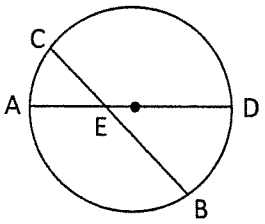
3. PA = 12, PO = 13, $\overline{PA}$ is tangent to circle O at A. Find the circumference of the circle.



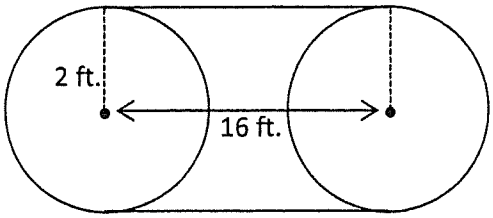
4. Diameter AB = 24, m∠BAC = 18. Find the length of $\widehat{AC}$.



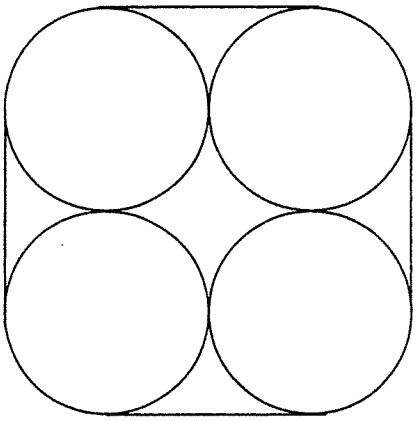
5. Diameter AD = 16, m$\widehat{AC}$ = x, m$\widehat{BD}$ = 2x and m∠AEC = 30. Find the lengths of $\widehat{AC}$ and $\widehat{BD}$.



6. On a large machine, the centers of two pulleys are 16 ft. apart and the radius of each pulley is 2 ft. How long of a belt is needed to wrap around both pulleys?



7. Four posts with 3 in. radii are bound together with a wire. Find the length of the shortest wire that will go around them.



8. The diagram below shows a belt tightly stretch over two wheels with radii 5 and 25. The distance between the centers of the wheels is 40. Find the length of the belt.