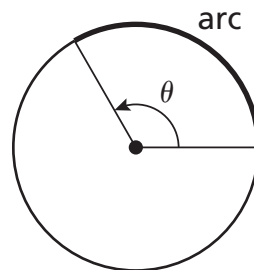


11.1 Start Thinking

The circle in the figure has a diameter of 10 centimeters. What is the circumference of the circle? Use the circumference to calculate the length of the arc that would be created for the given measure of θ .



1. $\theta = 180^\circ$

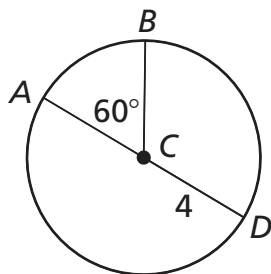
2. $\theta = 90^\circ$

3. $\theta = 150^\circ$

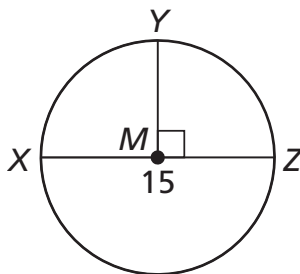
11.1 Warm Up

Use the diagram to find the measure of the indicated angle and the circumference of the circle.

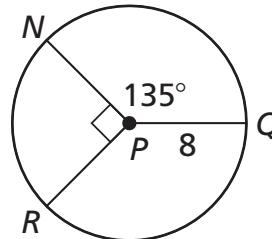
1. $m\angle BCD$



2. $m\angle YMX$



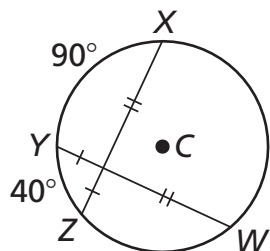
3. $m\angle RPQ$



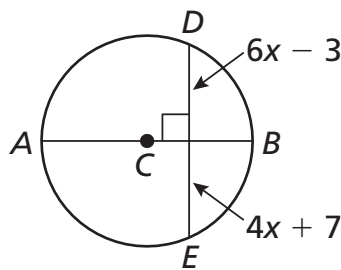
11.1 Cumulative Review Warm Up

Use the diagram to find the indicated measure.

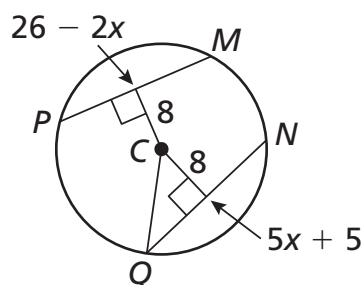
1. $m\widehat{WZY}$



2. DE



3. CQ



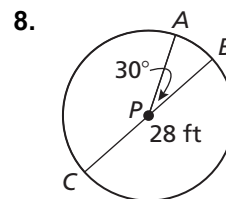
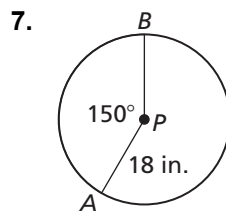
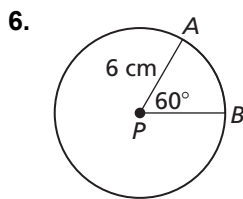
11.1

Practice A

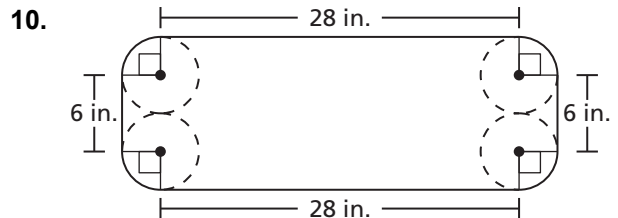
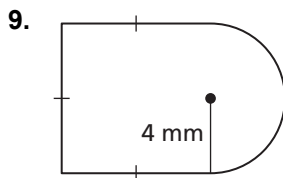
In Exercises 1–4, find the indicated measure.

- radius of a circle with a circumference of 42π meters
- circumference of a circle with a radius of 27 feet
- circumference of a circle with a diameter of 15 inches
- diameter of a circle with circumference 39 centimeters
- Maple trees suitable for tapping for syrup should be at least 1.5 feet in diameter. You wrap a rope around a tree trunk, then measure the length of the rope needed to wrap one time around the trunk. This length is 4 feet 2 inches. Explain how you can use this length to determine whether the tree is suitable for tapping.

In Exercises 6–8, find the arc length of \widehat{AB} .

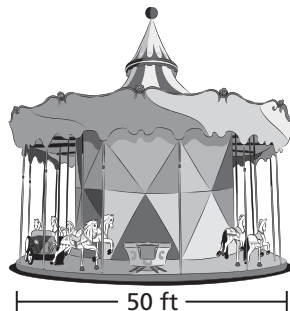


In Exercises 9 and 10, find the perimeter of the region.



In Exercises 11 and 12, convert the angle measure.

- Convert 60° to radians.
- Convert $\frac{5\pi}{4}$ radians to degrees.
- A carousel has a diameter of 50 feet. To the nearest foot, how far does a child seated near the outer edge travel when the carousel makes 8 revolutions?



11.1

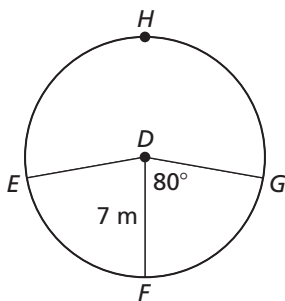
Practice B

In Exercises 1 and 2, find the indicated measure.

- exact diameter of a circle with a circumference of 36 meters
- exact circumference of a circle with a radius of 5.4 feet
- Find the circumference of a circle inscribed in a square with a side length of 14 centimeters.

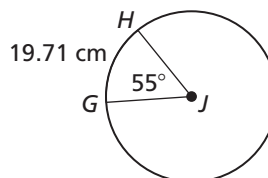
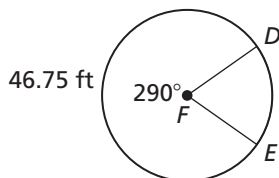
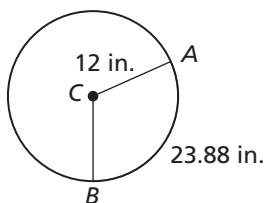
In Exercises 4–9, use the diagram of circle D with $\angle EDF \cong \angle FDG$ to find the indicated measure.

- $m\widehat{EFG}$
- $m\widehat{EHG}$
- arc length of \widehat{EFG}
- arc length of \widehat{EHG}
- $m\widehat{EHF}$
- arc length of \widehat{FEG}



In Exercises 10–12, find the indicated measure.

- $m\widehat{AB}$
- circumference of $\odot F$
- radius of $\odot J$

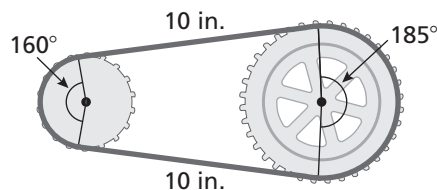


In Exercises 13 and 14, convert the angle measure.

- Convert 105° to radians.
- Convert $\frac{5\pi}{6}$ radians to degrees.

- The chain of a bicycle travels along the front and rear sprockets, as shown in the figure. The circumferences of the rear sprocket and the front sprocket are 12 inches and 20 inches, respectively.

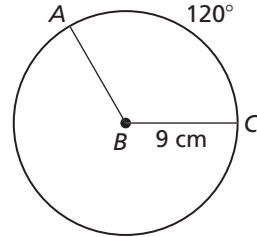
- How long is the chain? Round your answer to the nearest tenth.
- On a chain, the teeth are spaced in $\frac{1}{2}$ -inch intervals. About how many teeth are there on this chain?



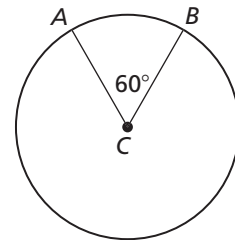
11.1 Enrichment and Extension

Circumference and Arc Length

1. Use the diagram of circle B .
 - a. Find the circumference of circle B .
 - b. Find the arc length of \widehat{AC} .

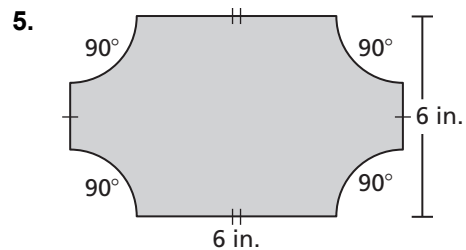
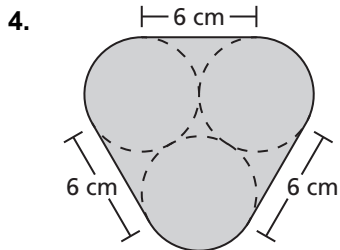


2. Points A and B lie on circle C , as shown. If the length of \widehat{AB} is 8 units, what is the radius of circle C to the nearest unit?



3. Find the circumference of a circle inscribed in a rhombus with diagonals that are 12 centimeters long and 16 centimeters long. (*Hint:* Diagonals of a rhombus are perpendicular and bisect each other.)

Find the perimeter of the region.



11.1 Puzzle Time

Why Did The Stage Manager Put Paste On The Programs?

A	B	C	D	E	F
G	H	I	J		

Complete each exercise. Find the answer in the answer column. Write the word under the answer in the box containing the exercise letter.

area FACE
5π AFTER
$\frac{2\pi}{9}$ TO
PICTURE AND
11.00 WAS
10π GLUED
$\frac{\pi}{9}$ WHEN
arc THE
58.27 SEATS
17.51 WOULD

Complete the sentence.

- A. A(n) _____ for a three-dimensional figure is a two-dimensional pattern that can be folded to form the three-dimensional figure.
- B. The _____ of a circle is the distance around the circle.
- C. A(n) _____ length is a portion of the circumference of a circle.

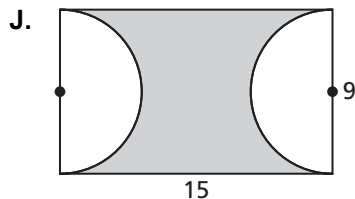
Find the indicated measure, round to the nearest hundredth where appropriate.

- D. circumference of a circle with radius 7 inches
- E. diameter of a circle with circumference 55 feet
- F. exact radius of a circle with a circumference of 34π
- G. exact circumference of a circle with a diameter of 10 inches

Convert the angle measure.

- H. Convert 40° to radians.
- I. Convert $\frac{3\pi}{8}$ radians to degrees.

Find the perimeter of the shaded region.



8.76 STAGE
37.5° TICKET
17 BE
circumference THAT
33.86 PROGRAM
net SO
radius TASTE
43.98 AUDIENCE
67.5° THEIR
34 STAYING