

Name: _____

Key

Geometry 10.1-10.2 HW

1. Identification

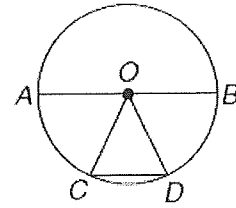
a. Name the circle.



Circle O

b. Name the radii of the circle.

\overline{AO} , \overline{BO} , \overline{CO} , \overline{DO}



c. Name the chords of a circle.

\overline{AB} , \overline{CD}

d. Name the diameter of the circle.

\overline{AB}

2. Find the circumference of a circle with the radius of $r=3\sqrt{2}$. Round to the nearest hundredth.

$$C = 2\pi r = 2 \cdot \pi \cdot 3\sqrt{2} = 6\pi\sqrt{2} \approx 26.66$$

3. If the radius of a circle is 4 what is the diameter and what is the circumference?

$$d = 2 \cdot r = 2 \cdot 4 = 8$$

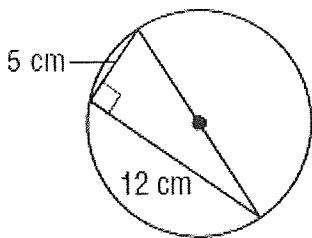
$$C = \pi \cdot d = 8\pi \approx 25.13$$

4. If the diameter of a circle is 6, find the radius and circumference.

$$r = \frac{d}{2} = \frac{6}{2} = 3$$

$$C = 2\pi r = 6\pi \approx 18.8$$

5. Find the circumference and area of the circle.



$$5^2 + 12^2 = d^2$$

$$d = 13 \text{ cm}$$

$$C = 13\pi \text{ cm} \approx 40.8 \text{ cm}$$

$$A = 42.25\pi \text{ cm}^2 \approx 132.7 \text{ cm}^2$$

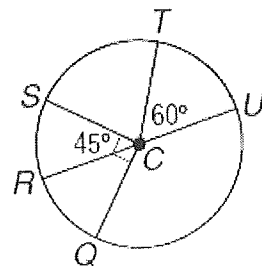
Find each measure.

1. $m\angle SCT = 75^\circ$

2. $m\angle SCU = 135^\circ$

3. $m\angle SCQ = 90^\circ$

4. $m\angle QCT = 165^\circ$



In $\odot O$, $m\angle BOA = 44$. Find each measure.

5. $m\widehat{BA} = 44^\circ$

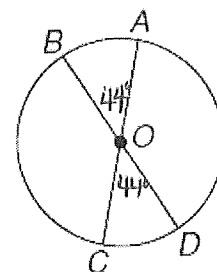
6. $m\widehat{BC} = 136^\circ$

7. $m\widehat{CD} = 44^\circ$

8. $m\widehat{ACB} = 316^\circ$

9. $m\widehat{BCD} = 180^\circ$

10. $m\widehat{AD} = 136^\circ$

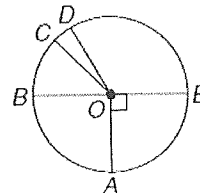


Arc Length: $l = \frac{A}{360} \cdot C$

The diameter of $\odot O$ is 24 units long. Find the length of each arc for the given angle measure. Round to the nearest tenth.

$r = 12$ units

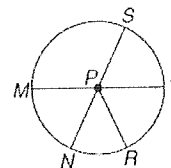
1. \widehat{DE} if $m\angle DOE = 120$



arc length = 8π units

The diameter of $\odot P$ is 15 units long and $\angle SPT \cong \angle RPT$. Find the length of each arc for the given angle measure. Round to the nearest tenth.

$d = 15$ units



2. \widehat{RT} if $m\angle SPT = 70$

3. \widehat{NR} if $m\angle RPT = 50$

$\frac{35\pi}{12}$ units

$\frac{10\pi}{3}$ units

4. Explain the difference between arc Length and arc measure.

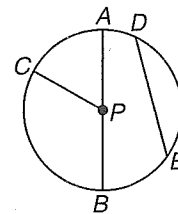
* Arc measure is the degree of rotation around the arc

* Arc length is a portion of the circumference

10-1 Skills Practice

Circles and Circumference

For Exercises 1–5, refer to the circle at the right.



1. Name the circle.

Circle P or $\odot P$

2. Name a radius.

CP, AP, BP

3. Name a chord.

AB or DE

4. Name a diameter.

AB

5. Name a radius not drawn as part of a diameter.

CP

6. Suppose the diameter of the circle is 16 centimeters. Find the radius.

$$r = \frac{d}{2} = \frac{16}{2} = 8 \text{ cm}$$

7. If $PC = 11$ inches, find AB .

↑
radius

↑
diameter

$$AB = 2(PC) = 2(11) = 22 \text{ in}$$

The diameters of $\odot F$ and $\odot G$ are 5 and 6 units, respectively.

Find each measure.

8. BF

$$BF + FG = BG$$

$$BF + 2.5 = 3$$

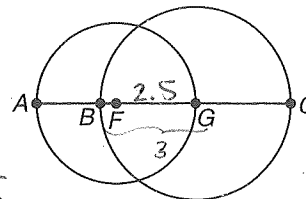
$$BF = 0.5 \text{ units}$$

9. AB

$$AB + BF = AF$$

$$AB + 0.5 = 2.5$$

$$AB = 2 \text{ units}$$



The radius, diameter, or circumference of a circle is given. Find the missing measures to the nearest hundredth.

10. $r = 8 \text{ cm}$

$$d = 16 \text{ cm}, c \approx 50.27 \text{ cm}$$

11. $r = 13 \text{ ft}$

$$d = 26 \text{ ft}, c \approx 81.68 \text{ ft}$$

12. $d = 9 \text{ m}$

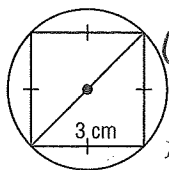
$$r = 4.5 \text{ m}, c \approx 28.27 \text{ m}$$

13. $C = 35.7 \text{ in.}$

$$d \approx 11.36 \text{ in}, r \approx 5.68 \text{ in}$$

Find the exact circumference of each circle. $\frac{1}{2}$ Area

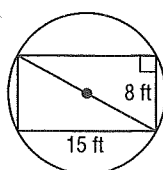
14.



$$C = 3\pi\sqrt{2} \text{ cm}$$

$$A = \frac{9\pi}{2} \text{ cm}^2$$

15.



$$C = 17\pi \text{ ft}$$

$$A = 72.25\pi \text{ ft}^2$$

10-2 Study Guide and Intervention *(continued)*

Measuring Angles and Arcs

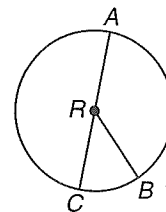
Arc Length An arc is part of a circle and its length is a part of the circumference of the circle.

Example In $\odot R$, $m\angle ARB = 135$, $RB = 8$, and AC is a diameter. Find the length of \widehat{AB} .

$m\angle ARB = 135$, so $m\widehat{AB} = 135$. Using the formula $C = 2\pi r$, the circumference is $2\pi(8)$ or 16π . To find the length of \widehat{AB} , write a proportion to compare each part to its whole.

$\frac{\text{length of } \widehat{AB}}{\text{circumference}} = \frac{\text{degree measure of arc}}{\text{degree measure of circle}}$	Proportion
$\frac{\ell}{16\pi} = \frac{135}{360}$	Substitution
$\ell = \frac{(16\pi)(135)}{360}$	Multiply each side by 16π .
$= 6\pi$	Simplify.

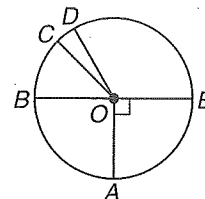
The length of \widehat{AB} is 6π or about 18.85 units.



Exercises

The diameter of $\odot O$ is 24 units long. Find the length of each arc for the given angle measure. Round to the nearest tenth.

- \widehat{DE} if $m\angle DOE = 120$ 8π or 25.1 units
- \widehat{DEA} if $m\angle DOE = 120$ 14π or 44.0 units
- \widehat{BC} if $m\angle COB = 45$ 3π or 9.4 units
- \widehat{CBA} if $m\angle COB = 45$ 9π or 28.3 units



The diameter of $\odot P$ is 15 units long and $\angle SPT \cong \angle RPT$. Find the length of each arc for the given angle measure. Round to the nearest tenth.

- \widehat{RT} if $m\angle SPT = 70$ $\frac{35\pi}{12}$ or 9.2 units
- \widehat{NR} if $m\angle RPT = 50$ $\frac{10\pi}{3}$ or 10.5 units
- \widehat{MST} 7.5π or 23.6 units
- \widehat{MRS} if $m\angle MPS = 140$ $\frac{55\pi}{6}$ or 28.8 units

