10-1 Lesson Reading Guide

Circles and Circumference

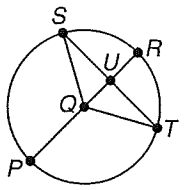
Get Ready for the Lesson

Read the introduction to Lesson 10-1 in your textbook.

How could you measure the approximate distance around the circular carousel using everyday measuring devices?

Read the Lesson

1. Refer to the figure.



a. Name the circle.

b. Name four radii of the circle.

c. Name a diameter of the circle.

d. Name two chords of the circle.

2. Match each description from the first column with the best term from the second column. (Some terms in the second column may be used more than once or not at all.)

a. a segment other than the diameter endpoints on a circle

b. the set of all points in a plane that are the same distance from a given point

c. the distance between the center of a circle and any point on the circle

d. a chord that passes through the center of a circle

e. a segment whose endpoints are the center and any point on a circle

f. a chord made up of two collinear radii

g. the distance around a circle

i. radius

ii. diameter

iii. chord

iv. circle

v. circumference

3. Which equations correctly express a relationship in a circle?

A. $d = 2r$ **B.** $C = \pi r$ **C.** $C = 2d$ **D.** $d = \frac{C}{\pi}$

E. $r = \frac{d}{\pi}$ **F.** $C = r^2$ **G.** $C = 2\pi r$ **H.** $d = \frac{1}{2}r$

Remember What You Learned

4. A good way to remember a new geometric term is to relate the word or its parts to geometric terms you already know. Look up the origins of the two parts of the word *diameter* in your dictionary. Explain the meaning of each part and give a term you already know that shares the origin of that part.

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10-2 Lesson Reading Guide

Measuring Angles and Arcs

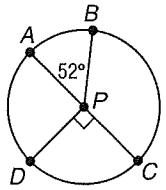
Get Ready for the Lesson

Read the introduction to Lesson 10-2 in your textbook.

- What is the measure of the angle formed by the hour hand and the minute hand of the clock at 5:00?
- What is the measure of the angle formed by the hour hand and the minute hand at 10:30? (Hint: How has each hand moved since 10:00?)

Read the Lesson

1. Refer to $\odot P$. $\overline{AC}$ is a diameter. Indicate whether each statement is *true* or *false*.



a. $\overset{\frown}{DAB}$ is a major arc.

b. $\overset{\frown}{ADC}$ is a semicircle.

c. $\overset{\frown}{AD} \cong \overset{\frown}{CD}$

d. $\overset{\frown}{DA}$ and $\overset{\frown}{AB}$ are adjacent arcs.

e. $\angle BPC$ is an acute central angle.

f. $\angle DPA$ and $\angle BPA$ are supplementary central angles.

2. Refer to the figure in Exercise 1. Give each of the following arc measures.

a. $m\overset{\frown}{AB}$ **b.** $m\overset{\frown}{CD}$

c. $m\overset{\frown}{BC}$ **d.** $m\overset{\frown}{ADC}$

e. $m\overset{\frown}{DAB}$ **f.** $m\overset{\frown}{DCB}$

g. $m\overset{\frown}{DAC}$ **h.** $m\overset{\frown}{BDA}$

3. Underline the correct word or number to form a true statement.

a. The arc measure of a semicircle is (90/180/360).

b. Arcs of a circle that have exactly one point in common are (congruent/opposite/adjacent) arcs.

c. The measure of a major arc is greater than (0/90/180) and less than (90/180/360).

d. Suppose a set of central angles of a circle have interiors that do not overlap. If the angles and their interiors contain all points of the circle, then the sum of the measures of the central angles is (90/270/360).

e. The measure of an arc formed by two adjacent arcs is the (sum/difference/product) of the measures of the two arcs.

f. The measure of a minor arc is greater than (0/90/180) and less than (90/180/360).

Remember What You Learned

4. A good way to remember something is to explain it to someone else. Suppose your classmate Luis does not like to work with proportions. What is a way that he can find the length of a minor arc of a circle without solving a proportion?

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10-3 Lesson Reading Guide

Arcs and Chords

Get Ready for the Lesson

Read the introduction to Lesson 10-3 in your textbook.

What do you observe about any two of the grooves in the waffle iron shown in the picture in your textbook?

Read the Lesson

1. Supply the missing words or phrases to form true statements.

a. In a circle, if a radius is _____ to a chord, then it bisects the chord and its _____.

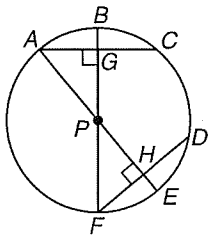
b. In a circle or in _____ circles, two _____ are congruent if and only if their corresponding chords are congruent.

c. In a circle or in _____ circles, two chords are congruent if they are _____ from the center.

d. A polygon is inscribed in a circle if all of its _____ lie on the circle.

e. All of the sides of an inscribed polygon are _____ of the circle.

2. If $\odot P$ has a diameter 40 centimeters long, and $AC = FD = 24$ centimeters, find each measure.

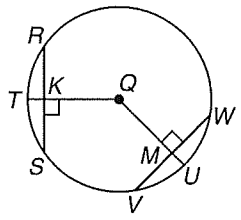


a. PA **b.** AG

c. PE **d.** PH

e. HE **f.** FG

3. In $\odot Q$, $RS = VW$ and $m\overset{\frown}{RS} = 70$. Find each measure.



a. $m\overset{\frown}{RT}$ **b.** $m\overset{\frown}{ST}$

c. $m\overset{\frown}{VW}$ **d.** $m\overset{\frown}{VU}$

4. Find the measure of each arc of a circle that is circumscribed about the polygon.

a. an equilateral triangle **b.** a regular pentagon

c. a regular hexagon **d.** a regular decagon

e. a regular dodecagon **f.** a regular n-gon

Remember What You Learned

5. Some students have trouble distinguishing between *inscribed* and *circumscribed* figures. What is an easy way to remember which is which?

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10-4 Lesson Reading Guide

Inscribed Angles

Get Ready for the Lesson

Read the introduction to Lesson 10-4 in your textbook.

- Why do you think regular hexagons are used rather than squares for the "hole" in a socket?

- Why do you think regular hexagons are used rather than regular polygons with more sides?

Read the Lesson

1. Underline the correct word or phrase to form a true statement.

a. An angle whose vertex is on a circle and whose sides contain chords of the circle is called a(n) (central/inscribed/circumscribed) angle.

b. Every inscribed angle that intercepts a semicircle is a(n) (acute/right/obtuse) angle.

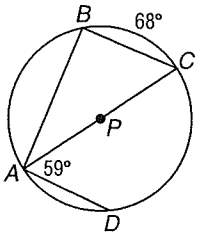
c. The opposite angles of an inscribed quadrilateral are (congruent/complementary/supplementary).

d. An inscribed angle that intercepts a major arc is a(n) (acute/right/obtuse) angle.

e. Two inscribed angles of a circle that intercept the same arc are (congruent/complementary/supplementary).

f. If a triangle is inscribed in a circle and one of the sides of the triangle is a diameter of the circle, the diameter is (the longest side of an acute triangle/a leg of an isosceles triangle/the hypotenuse of a right triangle).

2. Refer to the figure. Find each measure.



a. $m\angle ABC$

b. $m\overset{\frown}{CD}$

c. $m\overset{\frown}{AD}$

d. $m\angle BAC$

e. $m\angle BCA$

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

g. $m\overset{\frown}{BCD}$

h. $m\overset{\frown}{BDA}$

Remember What You Learned

3. A good way to remember a geometric relationship is to visualize it. Describe how you could make a sketch that would help you remember the relationship between the measure of an inscribed angle and the measure of its intercepted arc.