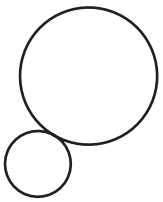
CHAPTER 10

Chapter Standardized Test

TEST-TAKING STRATEGY Read each test question carefully. Always look for shortcuts that will allow you to work through a problem more quickly.

1. MULTIPLE CHOICE How many common tangents do the circles at the right have?



(A) 0 (B) 1
(C) 2 (D) 3
(E) 4

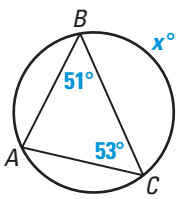
2. MULTIPLE CHOICE Suppose $\overline{AB}$ is a diameter of $\odot O$, line r is tangent to $\odot O$ at A, and line s is tangent to $\odot O$ at B. Which statements are true?

I. r bisects $\overline{AB}$. **II.** $OA = 2 \cdot AB$

III. $r \parallel s$

(A) I only (B) II only (C) III only
(D) I and II (E) II and III

3. MULTIPLE CHOICE Use the diagram to find the value of x.

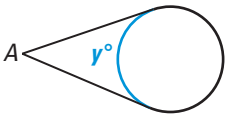


(A) 38 (B) 106
(C) 114 (D) 76
(E) 152

4. MULTIPLE CHOICE Find the length of a chord that is 21 cm from the center of a circle with radius 29 cm.

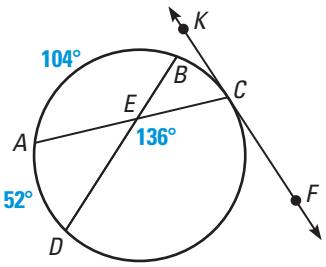
(A) 20 cm (B) 40 cm (C) 42 cm
(D) 8 cm (E) 16 cm

5. MULTIPLE CHOICE If $m\angle A = 42°$, find the value of y in the diagram.



(A) 42 (B) 138
(C) 318 (D) 222
(E) cannot be determined

QUANTITATIVE COMPARISON In Exercises 6 and 7, use the diagram to choose the statement that is true. $\overleftrightarrow{KF}$ is tangent to the circle.



(A) The quantity in column A is greater.
(B) The quantity in column B is greater.
(C) The two quantities are equal.
(D) The relationship cannot be determined from the given information.

	Column A	Column B
6.	$m\widehat{DC}$	168°
7.	$m\widehat{ABC}$	$m\angle FCA$

8. MULTIPLE CHOICE A diameter of a circle has endpoints $(-4, 8)$ and $(6, 2)$. What is an equation of the circle?

(A) $(x - 1)^2 + (y - 5)^2 = 34$
(B) $(x + 1)^2 + (y + 5)^2 = 34$
(C) $(x - 6)^2 + (y - 2)^2 = 136$
(D) $(x - 1)^2 + (y - 5)^2 = 136$
(E) $(x + 1)^2 + (y - 5)^2 = 34$

9. MULTIPLE CHOICE Describe the locus of all points in the coordinate plane that are equidistant from points $(-3, 1)$ and $(1, 9)$ and 2 units from the line $x = -7$.

(A) $(-5, 7)$
(B) The line $y = -5$
(C) $(-5, 8)$ and $(-9, 10)$
(D) $(-5, 7)$ and $(-9, 9)$
(E) $(-7, 8)$

MULTI-STEP PROBLEM **Quadrilateral *EFGH* is inscribed in a circle. $m\angle E = x^2 + 15$, $m\angle F = 27x$, and $m\angle G = 6x^2 - 10$.**

10. Find the value of x.

11. Find the measure of each angle of the quadrilateral.

12. If $m\overset{\frown}{GH} = 30°$, find the measures of $\overset{\frown}{EF}$, $\overset{\frown}{FG}$, and $\overset{\frown}{EH}$.

MULTI-STEP PROBLEM **The points *A*(0, 0), *B*(3, 0), and *C*(0, 4) lie on $\odot P$.**

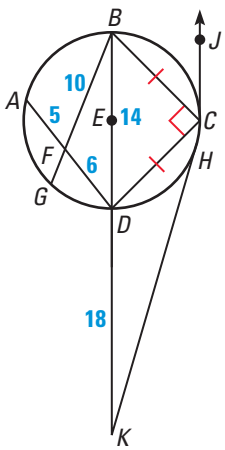
13. Explain why $\overline{BC}$ is a diameter of $\odot P$.

14. Find the coordinates of point P and the radius of $\odot P$.

15. Write an equation of $\odot P$.

16. What is the locus of points in the coordinate plane that are equidistant from A, B, and C?

MULTI-STEP PROBLEM **In Exercises 17–20, use the diagram at the right. $\overrightarrow{CJ}$ is tangent to $\odot E$ at *C* and $\overline{KH}$ is tangent to $\odot E$ at *H*.**



17. Find the length of the segment, the measure of the arc, or the measure of the angle. Round your answer to two decimal places, if necessary.

a. GF **b.** KH **c.** $m\overset{\frown}{BGD}$

d. $m\overset{\frown}{BC}$ **e.** $m\angle CDB$ **f.** $m\angle BCJ$

18. Name two congruent arcs. Justify your answer.

19. If $m\angle BFD = 120°$, find $m\overset{\frown}{AG}$.

20. If $m\angle K = 16°$, find the measures of $\overset{\frown}{BH}$ and $\overset{\frown}{HD}$.

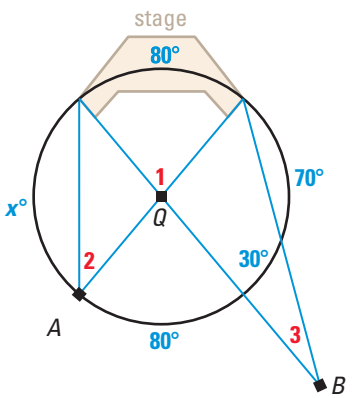
MULTI-STEP PROBLEM **Sketch and describe the locus.**

21. The locus of points that are equidistant from A and B.

22. The locus of points that are 2 inches or less from $\overleftrightarrow{AB}$.

23. The locus of points that are equidistant from A and B and are 2 inches or less from $\overleftrightarrow{AB}$.

MULTI-STEP PROBLEM **In Exercises 24–26, use the diagram. Television cameras are positioned at *A*, *B*, and *Q*. The stage is an arc of $\odot Q$.**



24. Find the value of x.

25. Find the measures of $\angle 1$, $\angle 2$, and $\angle 3$.

26. ***Writing*** Suppose you are operating the camera located at point B. If you want a 20° angle of the stage, should you move closer to the stage or farther away? Explain.

MULTI-STEP PROBLEM **You are visiting a museum that has a circular yurt on display. You are not allowed to enter the yurt. To estimate its radius, you stand 5 feet from the yurt and measure 10 feet to a point of tangency.**

27. Sketch a diagram to model the problem.

28. Find the radius and diameter of the yurt. Explain your method.