Name _____

12-3B Lesson Master

Questions on SPUR Objectives
See Student Edition pages 862–865 for objectives.

SKILLS Objective B

1. A circle has equation $x^2 + y^2 = 10$. Give an equation or inequality for

   a. the interior. _____   b. the exterior. _____

   c. the top semicircle. _____   d. the bottom semicircle. _____

2. A circle has equation $(x - 3)^2 + (y + 5)^2 = 13$. Give an equation or inequality for

   a. the interior. _____   b. the exterior. _____

   c. the top semicircle. _____   d. the bottom semicircle. _____

3. a. Write an inequality for the set of all points 5 units or less away from $(5, 6)$.

   _____

   b. Does the point $(2, 3)$ satisfy the inequality? _____

4. a. Write an inequality for the set of all points 7 units or more away from $(3, 4)$.

   _____

   b. Does the point $(5, -4)$ satisfy the inequality? _____

USES Objective G

5. A parade float 8 feet high and 5 feet wide approached a semicircular arch with a diameter of 18 feet.

   a. Will the float fit through the arch? Justify your answer.

   _____

   _____

   _____

   b. Find the radius of the smallest arch through which the float could pass.

   _____

6. A semicircular mirror is made from four smaller mirrors as shown at the right. What are the least dimensions possible for the rectangular mirror out of which each end piece is cut?

   _____

4 ft

2 ft   2 ft   2 ft   2 ft
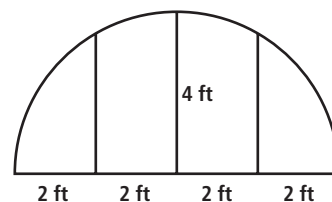
Name _____

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7. A truck 7 feet high and 4 feet wide approaches a semicircular tunnel which has a diameter of 16 feet.

a. Will the truck fit through the tunnel? Justify your answer.

_____

_____

_____

b. Find the radius of the smallest tunnel the truck could enter.
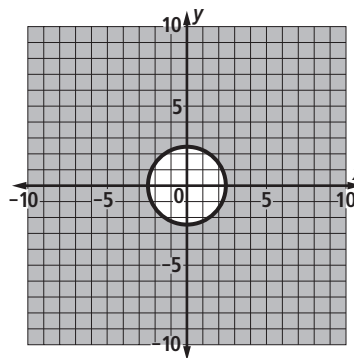
_____

8. The pilot of a small airplane tells an air-traffic controller that he is within a 14-mile radius of a town that is 2 miles north of the airport. Write an inequality that describes his possible locations (x, y) from the point of view of the controller.

_____

In 9 and 10, write an inequality for the shaded region.
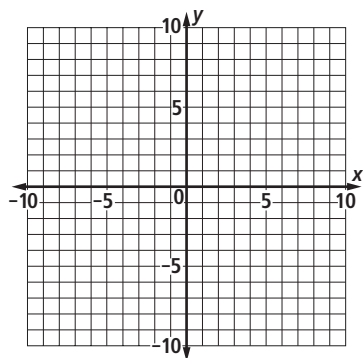
9. _____
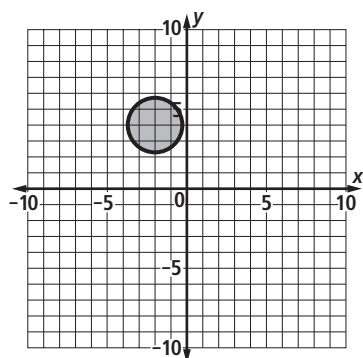
10. _____

In 11 and 12, graph the relation below each question.

11. $(x + 3)^2 + y^2 \leq 4$

12. $(x + 1)^2 + (y + 6)^2 \geq 4$

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