Practice 12-5 Name _____

Find the center and radius of each circle.

1. $x^2 + y^2 = 36$

2. $(x - 2)^2 + (y - 7)^2 = 49$

3. $(x + 1)^2 + (y + 6)^2 = 16$

4. $(x + 3)^2 + (y - 11)^2 = 12$

Write the standard equation of each circle.

5. center (-5, 4); $r = \frac{1}{2}$

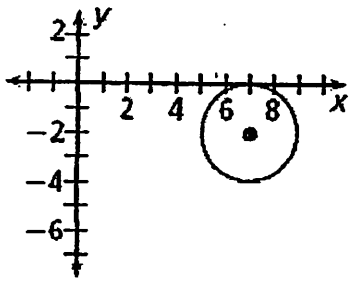
6. center (0, 0); $r = 7$

7. center (-2, -5); $r = \sqrt{2}$

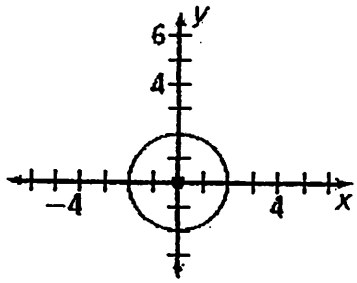
8. center (5, 3); $r = 2$

Write an equation for each circle.

9.



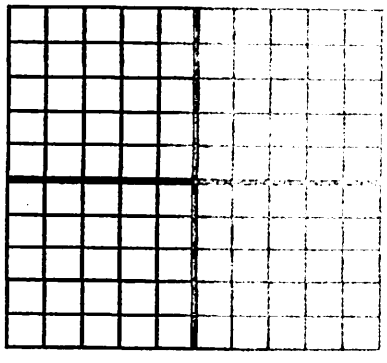
10.



Write an equation for each circle with the given center that passes through the given point. [Use of graph is optional]

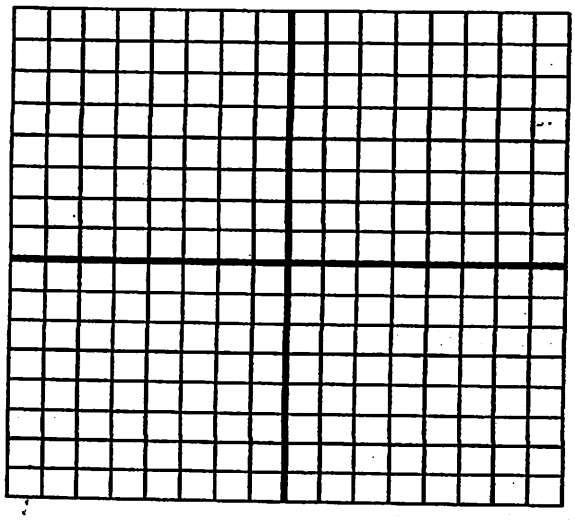
11. center (0, 0); point (3, 4)

12. center (-4, -3); point (2, 2)

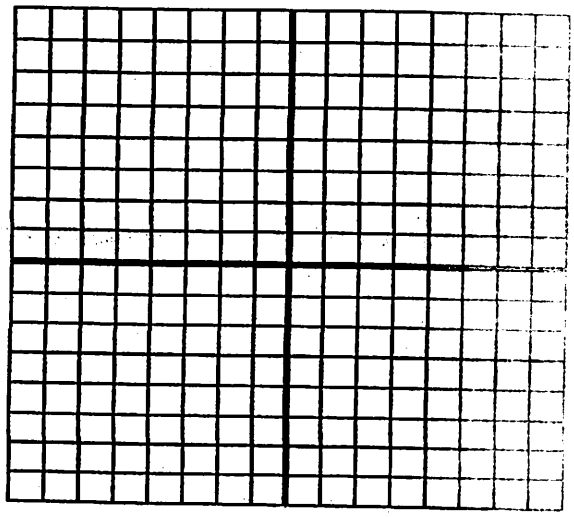


Graph each circle. Label its center, and state its radius.

13. $x^2 + y^2 = 36$



14. $(x - 3)^2 + (y - 5)^2 = 9$



15. Find all points of intersection for $\begin{matrix} x^2+y^2=8 \\ y=2 \end{matrix}$. Make a sketch.

Geometry Practice
Locus

Name _____

1. The locus of points equidistant from two sides of an acute scalene triangle is

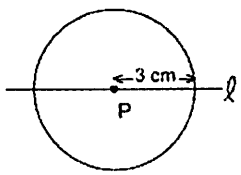
(1) an angle bisector
(2) an altitude
(3) a median
(4) the third side

2. What is the locus of points at a given distance from a line?

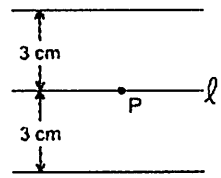
(1) 1 point
(2) 2 points
(3) 1 circle
(4) 2 parallel lines

3. If point *P* lies on line *l*, which diagram represents the locus of points 3 centimeters from point *P*?

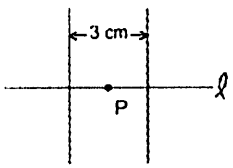
(1)



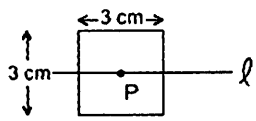
(3)



(2)



(4)



4. Which point lies on the locus of points equidistant from *A*(2, 0) and *B*(6, 0)?

(1) (0, 4)
(2) (2, 5)
(3) (5, 4)
(4) (4, 5)

5. Write the equation and graph the locus of points that are 5 units from (2, -4).

6. What is the equation of the locus of points equidistant from the points (-3, 1) and (-3, 7)?

7. What is the equation of the locus of points equidistant from the lines y = 5 and y = -7?

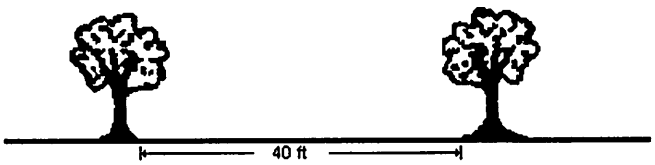
8. What is the equation(s) of the locus of points 6 units from the x-axis?

9. What is the equation of the locus of points 15 units away from the origin?

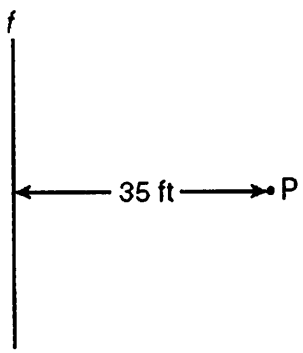
A compound locus problem involves two, or possibly more, locus conditions occurring at the same time.

If TWO locus conditions exist in a problem (a compound locus), prepare each condition separately ON THE SAME DIAGRAM. After the two conditions are drawn separately, count the number of points where the two loci conditions intersect.

10. Maria's backyard has two trees that are 40 feet apart, as shown in the accompanying diagram. She wants to place lampposts so that the posts are 30 feet from both of the trees. How many locations for the lampposts are possible? (Think of the trees as points)

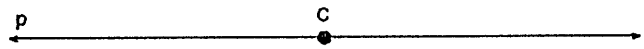


11. A man wants to place a new bird bath in his yard so that it is 30 feet from a fence, *f*, and also 10 feet from a light pole, *P*. As shown in the diagram below, the light pole is 35 feet away from the fence.

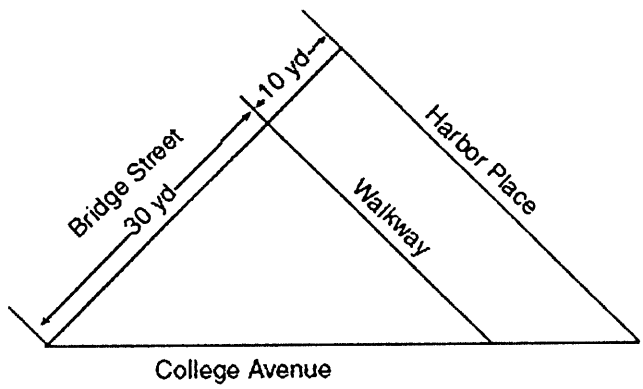


How many locations are possible for the bird bath?

12. In the diagram below, town *C* lies on straight road *p*. How many points are 6 miles from town *C* and also 3 miles from road *p*?



13. A triangular park is formed by the intersection of three streets, Bridge Street, Harbor Place, and College Avenue, as shown in the accompanying diagram. A walkway parallel to Harbor Place goes through the park. A time capsule has been buried in the park in a location that is equidistant from Bridge Street and College Avenue and 5 yards from the walkway.



At how many possible locations could the time capsule be buried?

Practice 12-5 Name Key

Find the center and radius of each circle.

1. $x^2 + y^2 = 36$

center $(0,0)$ $r = 6$

2. $(x - 2)^2 + (y - 7)^2 = 49$

center $(2,7)$ $r = 7$

3. $(x + 1)^2 + (y + 6)^2 = 16$

center $(-1,-6)$ $r = 4$

4. $(x + 3)^2 + (y - 11)^2 = 12$

center $(-3,11)$ $r = \sqrt{12} = 2\sqrt{3}$

Write the standard equation of each circle.

5. center $(-5, 4)$; $r = \frac{1}{2}$

$(x+5)^2+(y-4)^2=\frac{1}{4}$

6. center $(0, 0)$; $r = 7$

$x^2+y^2=49$

7. center $(-2, -5)$; $r = \sqrt{2}$

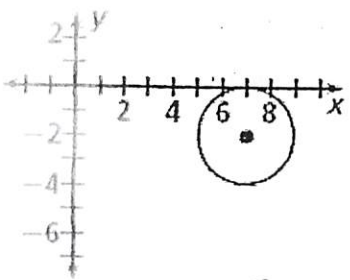
$(x+2)^2+(y+5)^2=2$

8. center $(5, 3)$; $r = 2$

$(x-5)^2+(y-3)^2=4$

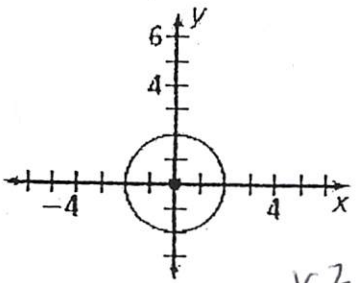
Write an equation for each circle.

9.



$(x-7)^2+(y+2)^2=4$

10.



$x^2+y^2=4$

Write an equation for each circle with the given center that passes through the given point. [Use of graph is optional]

11. center $(0, 0)$; point $(3, 4)$

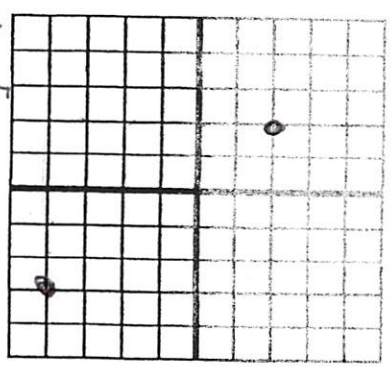
$r = 5$

$x^2+y^2=25$

12. center $(-4, -3)$; point $(2, 2)$

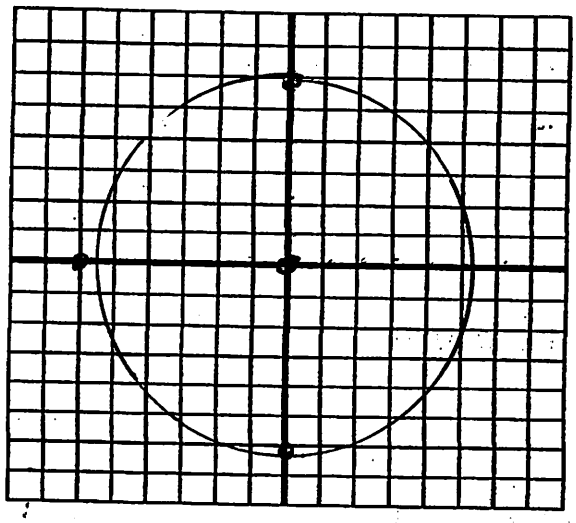
$r=\sqrt{61}$

$(x+4)^2+(y+3)^2=61$



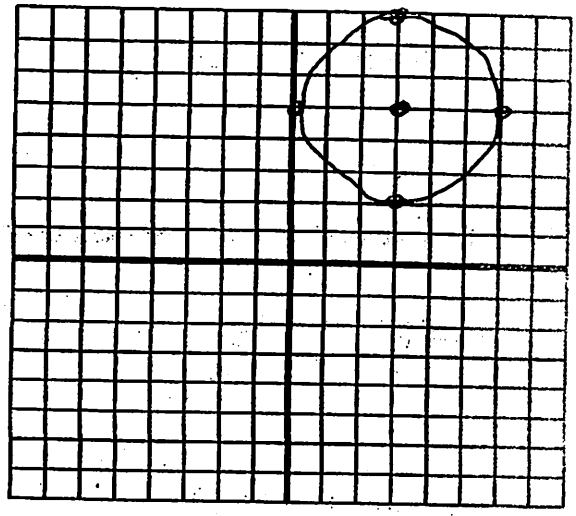
Graph each circle. Label its center, and state its radius.

13. $x^2 + y^2 = 36$



14. $(x - 3)^2 + (y - 5)^2 = 9$

Center : (3, 5)



15. Find all points of intersection for $\begin{matrix} x^2+y^2=8 \\ y=2 \end{matrix}$. Make a sketch.

$$x^2 + 2^2 = 8$$

$$x^2 = 4$$

$$x = \pm 2$$

(2, 2) and (-2, 2)

Geometry Practice
Locus

Name Key

1. The locus of points equidistant from two sides of an acute scalene triangle is

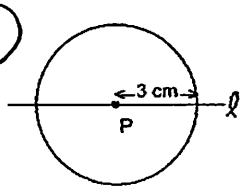
(1) an angle bisector
(2) an altitude
(3) a median
(4) the third side

2. What is the locus of points at a given distance from a line?

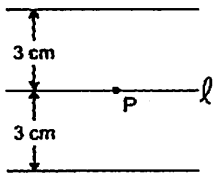
(1) 1 point
(2) 2 points
(3) 1 circle
(4) 2 parallel lines

3. If point *P* lies on line *l*, which diagram represents the locus of points 3 centimeters from point *P*?

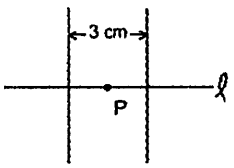
(1)



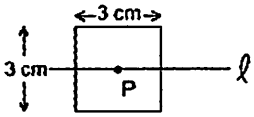
(3)



(2)



(4)



4. Which point lies on the locus of points equidistant from *A*(2, 0) and *B*(6, 0)?

(1) (0, 4)
(2) (2, 5)
(3) (5, 4)
(4) (4, 5)

5. Write the equation and graph the locus of points that are 5 units from (2, -4).

$(x-2)^2 + (y+4)^2 = 25$

6. What is the equation of the locus of points equidistant from the points (-3, 1) and (-3, 7)?

$y = 4$

7. What is the equation of the locus of points equidistant from the lines y = 5 and y = -7?

$y = -1$

8. What is the equation(s) of the locus of points 6 units from the x-axis?

$y = 6$

$y = -6$

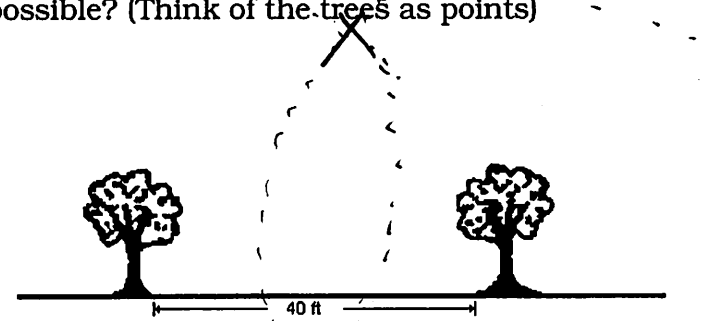
9. What is the equation of the locus of points 15 units away from the origin?

$x^2 + y^2 = 225$

A compound locus problem involves two, or possibly more, locus conditions occurring at the same time.

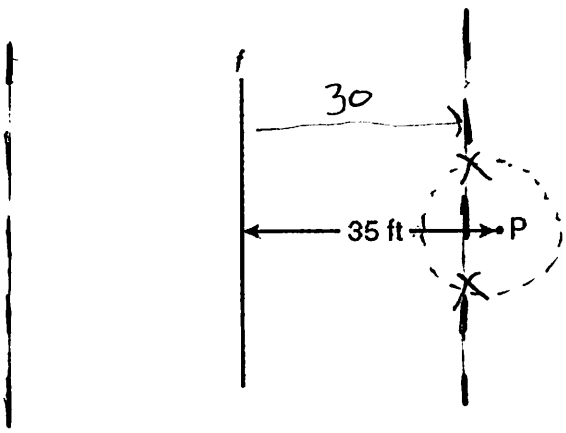
If TWO locus conditions exist in a problem (a compound locus), prepare each condition separately ON THE SAME DIAGRAM. After the two conditions are drawn separately, count the number of points where the two loci conditions intersect.

10. Maria's backyard has two trees that are 40 feet apart, as shown in the accompanying diagram. She wants to place lampposts so that the posts are 30 feet from both of the trees. How many locations for the lampposts are possible? (Think of the trees as points)



2 Locations

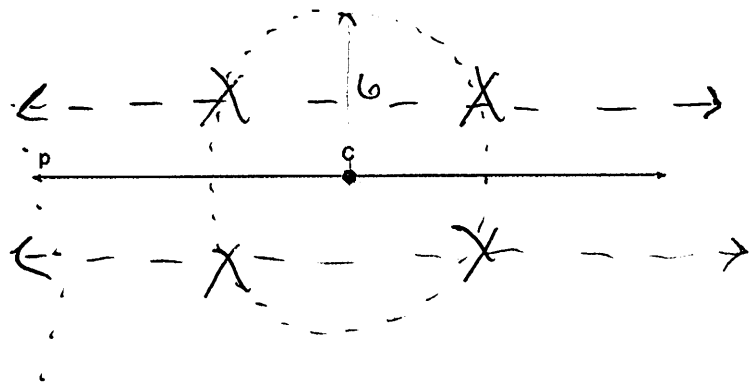
11. A man wants to place a new bird bath in his yard so that it is 30 feet from a fence, *f*, and also 10 feet from a light pole, *P*. As shown in the diagram below, the light pole is 35 feet away from the fence.



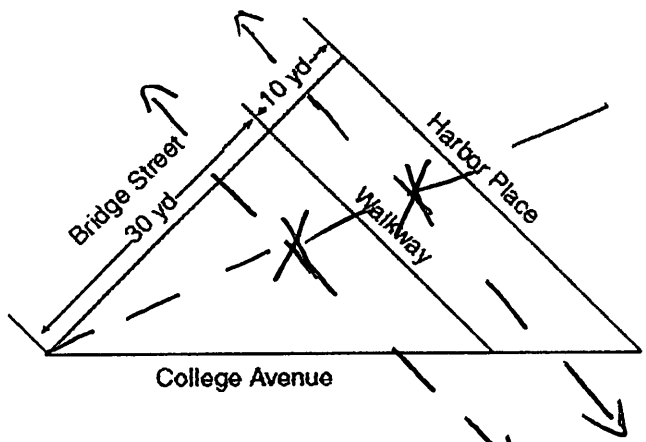
How many locations are possible for the bird bath?

2 Locations

12. In the diagram below, town *C* lies on straight road *p*. How many points are 6 miles from town *C* and also 3 miles from road *p*?



13. A triangular park is formed by the intersection of three streets, Bridge Street, Harbor Place, and College Avenue, as shown in the accompanying diagram. A walkway parallel to Harbor Place goes through the park. A time capsule has been buried in the park in a location that is equidistant from Bridge Street and College Avenue and 5 yards from the walkway.



At how many possible locations could the time capsule be buried?

2 Locations