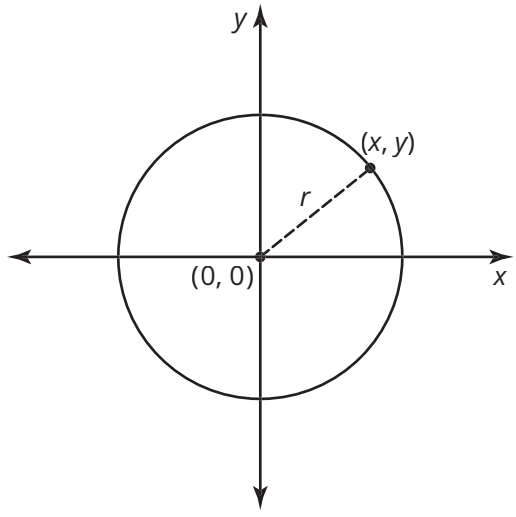
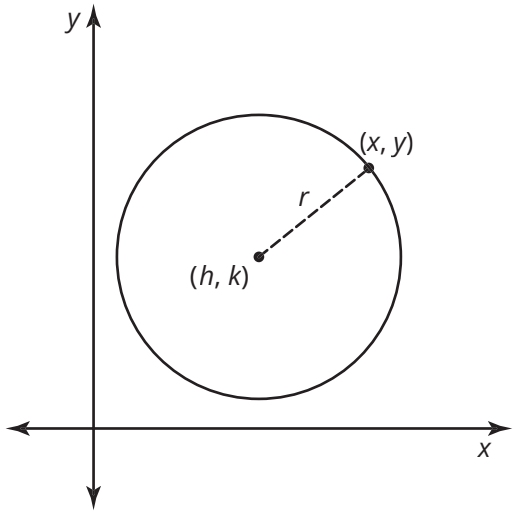


# Assignment

## Write

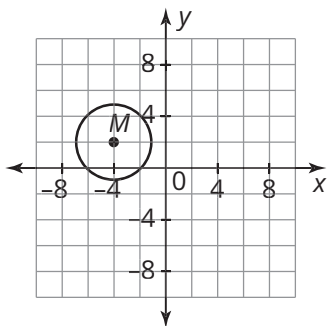
Describe how the graph of  $(x - h)^2 + (y - k)^2 = r^2$  is related to the graph of  $x^2 + y^2 = r^2$ .

## Remember

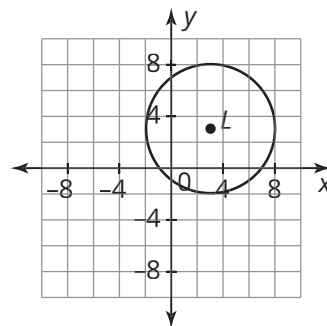
Circle with center at origin and radius $r$	Circle with center at $(h, k)$ and radius $r$
	
Center: $(0, 0)$ Radius: $r$	Center: $(h, k)$ Radius: $r$
$x^2 + y^2 = r^2$	$(x - h)^2 + (y - k)^2 = r^2$

## Practice

- Write an equation in standard form given circle  $M$ .
- Write an equation in standard form given circle  $M$ .



- A circle with a center at  $M(-4, 2)$  and a radius of 3.
- A circle with the same center as the circle  $M$ , but whose circumference is 20 times that of circle  $M$ .



- A circle with center at  $L(3, 3)$  and a radius of 5.
- A circle with the same center as the circle  $L$ , but whose area is 20 times that of circle  $L$ .

3. Determine whether each equation represents a circle. If so, describe the location of the center and radius.

a.  $x^2 + y^2 - 4x + 6y + 9 = 0$

b.  $4x^2 + 4y^2 - 8x - 20y - 30 = 0$

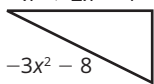
c.  $3x^2 + y^2 + 3x + 9y + 15 = 0$

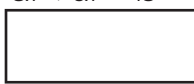
## Stretch

- Determine whether the point (1, 1) is inside, outside, or on the circle that is represented by the equation  $x^2 + y^2 + 4x - 8y = 5$ . Explain your reasoning.
- Determine the radius of the circle given the location of the center of the circle and a point on the circle. Then, write the equation of the circle in standard form.
  - A circle with a center at (0, 0) and the point (0, 3) on the circle
  - A circle with a center at (1, 1) and the point (1, 5) on the circle
  - A circle with a center at (-2, 5) and the point (-2, 7) on the circle

## Review

- Determine the inverse of  $y = (x + 9)^2$ .
- The table shows temperatures recorded during a winter storm. Determine the regression equation that best models the data set. Include the correlation coefficient.
- Determine the perimeter of each figure. The sides are measured in inches.

a.   $x^3 + 2x - 4$   
 $-3x^2 - 8$   $3x^3 + x^2 + 6x + 7$

b.   $3x^3 + 8x^2 - 13$   
 $9x^3 - 4x + 7$

Time Since Start of Snow Storm (hours)	Temperature (°F)
1	25
2	22
3	18
4	16
5	12
6	13
7	15
8	20
9	23
10	27