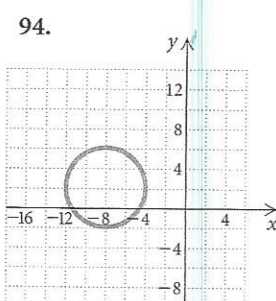
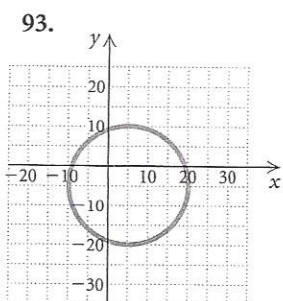
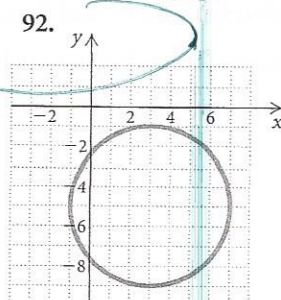
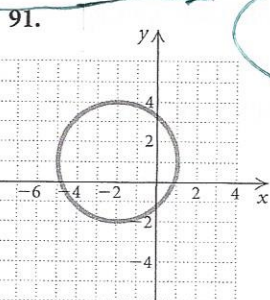


86. $(x + 2)^2 + y^2 = 100$
 87. $(x - 1)^2 + (y - 5)^2 = 36$
 88. $(x - 7)^2 + (y + 2)^2 = 25$
 89. $(x + 4)^2 + (y + 5)^2 = 9$
 90. $(x + 1)^2 + (y - 2)^2 = 64$

Find the equation of the circle. Express the equation in standard form.



Synthesis

To the student and the instructor: The Synthesis exercises found at the end of every exercise set challenge students to combine concepts or skills studied in that section or in preceding parts of the text.

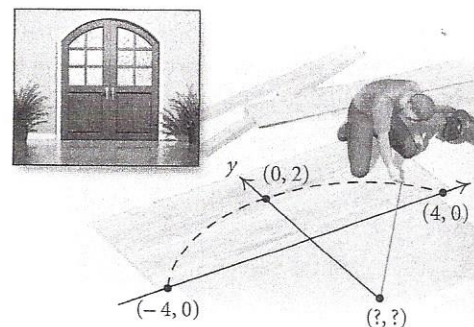
95. If the point (p, q) is in the fourth quadrant, in which quadrant is the point $(q, -p)$?

Find the distance between the pair of points and find the midpoint of the segment having the given points as endpoints.

96. $(a, \frac{1}{a})$ and $(a + h, \frac{1}{a + h})$
 97. (a, \sqrt{a}) and $(a + h, \sqrt{a + h})$

Find an equation of a circle satisfying the given conditions.

98. Center $(-5, 8)$ with a circumference of 11π
 99. Center $(2, -7)$ with an area of 36π square units
 100. Find the point on the x -axis that is equidistant from the points $(-4, -3)$ and $(-1, 5)$.
 101. Find the point on the y -axis that is equidistant from the points $(-2, 0)$ and $(4, 6)$.
 102. Determine whether the points $(-1, -3)$, $(-4, -9)$, and $(2, 3)$ are collinear.
 103. *An Arch of a Circle in Carpentry.* Matt is measuring the front entrance to his home and needs to cut an arch for the top of an entranceway. The arch needs to be 8 ft wide and 2 ft high. To draw the arch, he will use a stretched string with one end attached to a nail at one end of the base of the arch and the other end attached to a nail at the other end of the base of the arch.



- a) Using a coordinate system, locate the center of the circle.
 b) What radius should Matt use to draw the arch?
104. Consider any right triangle with base b and height h , situated as shown. Show that the midpoint of the hypotenuse P is equidistant from the three vertices of the triangle.

