Write an equation for the circle described in problems 1 – 4.

1. center at origin, $r = 7$
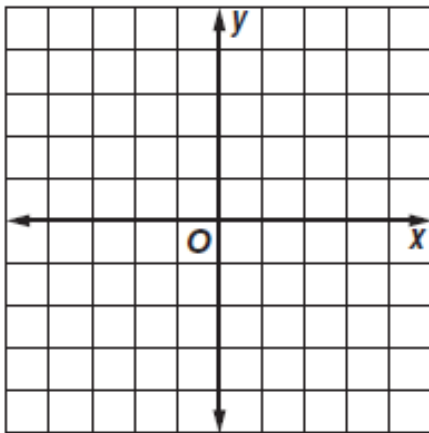
2. center at $(0, 0)$, $d = 18$

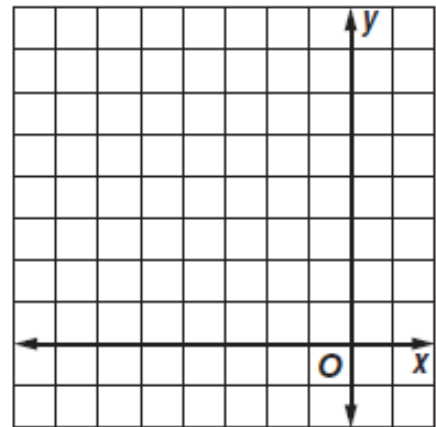**3.** center at $(-7, 11)$, $r = 8$

4. center at $(12, -9)$, $d = 22$

Graph the circle described in problems 5 and 6.

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

(6) $(x + 3)^2 + (y - 3)^2 = 9$

(7) **EARTHQUAKES** When an earthquake strikes, it releases seismic waves that travel in concentric circles from the epicenter of the earthquake. Seismograph stations monitor seismic activity and record the intensity and duration of earthquakes. Suppose a station determines that the epicenter of an earthquake is located about 50 kilometers from the station. If the station is located at the origin, write an equation for the circle that represents a possible epicenter of the earthquake.

(8) **DRAFTING** The design for a park is drawn on a coordinate graph. The perimeter of the park is modeled by the equation $(x - 3)^2 + (x - 7)^2 = 225$. Each unit on the graph represents 10 feet. What is the radius of the actual park?