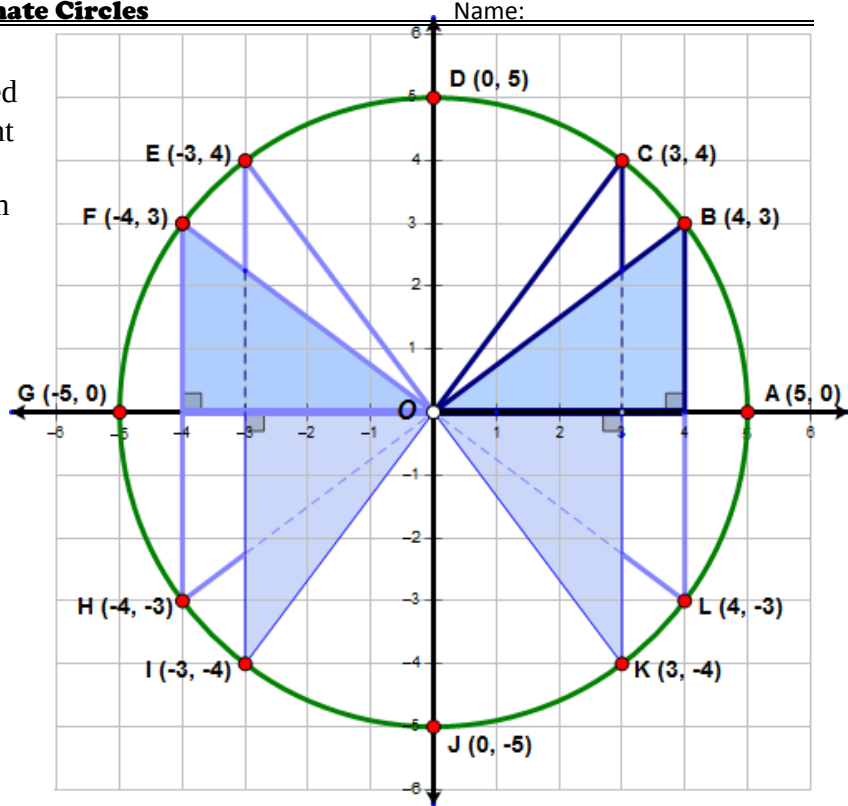


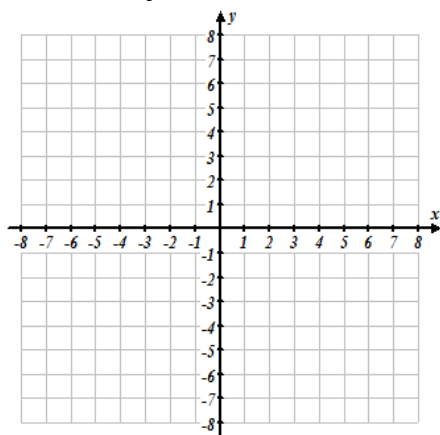
What is a circle? It is geometrically defined by a set of points or locus of points that are equidistant from a point (the **center**). Consider the circle at the right. What is the length of every segment drawn from center O to a point on the edge of the circle?

How would you find the length of segment OB?

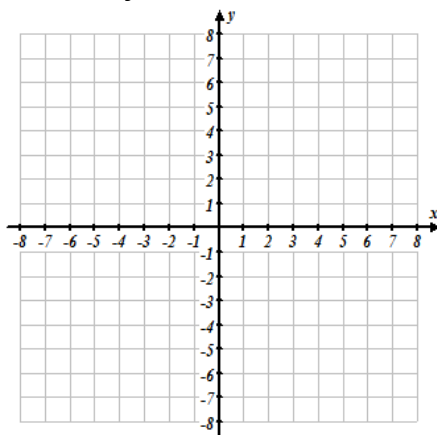


1. **Basic Circles** Graph the following:

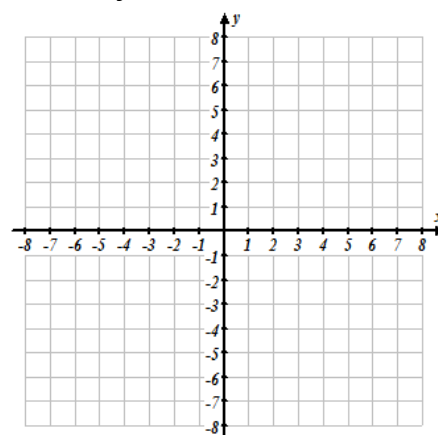
A. $x^2 + y^2 = 4$



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

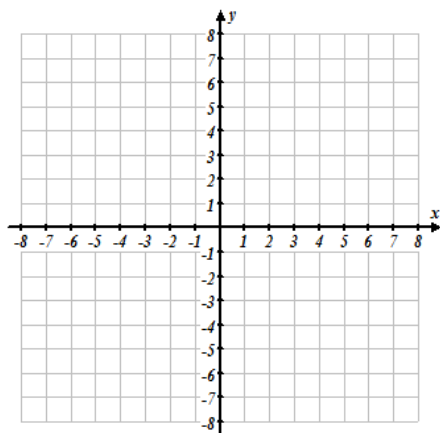


C. $x^2 + y^2 = 20$

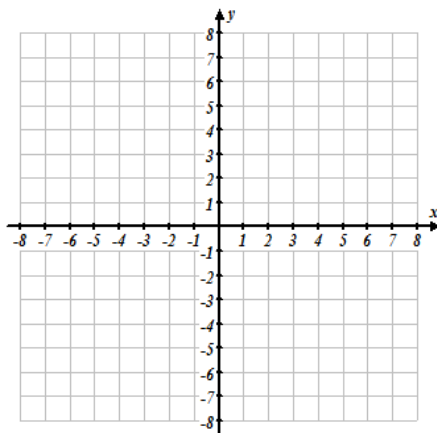


2. **Translated Circles** Graph the following:

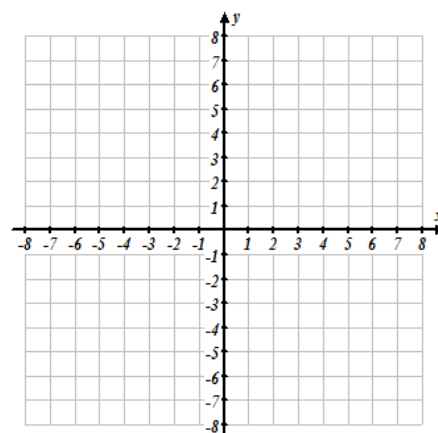
A. $(x-4)^2 + (y+2)^2 = 9$



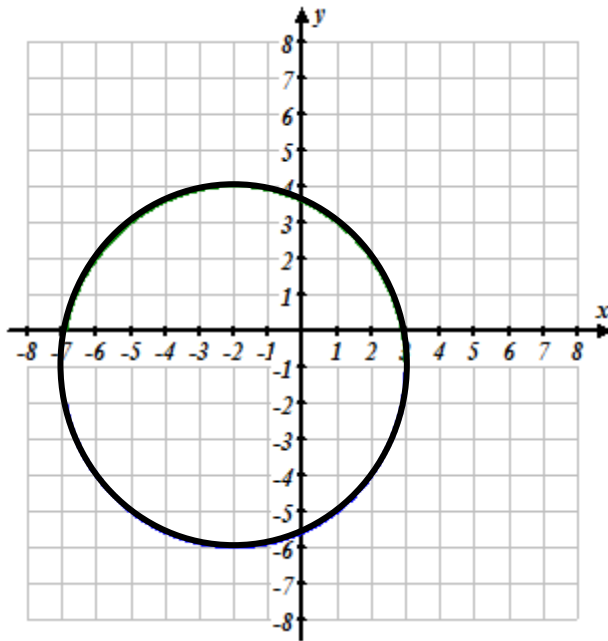
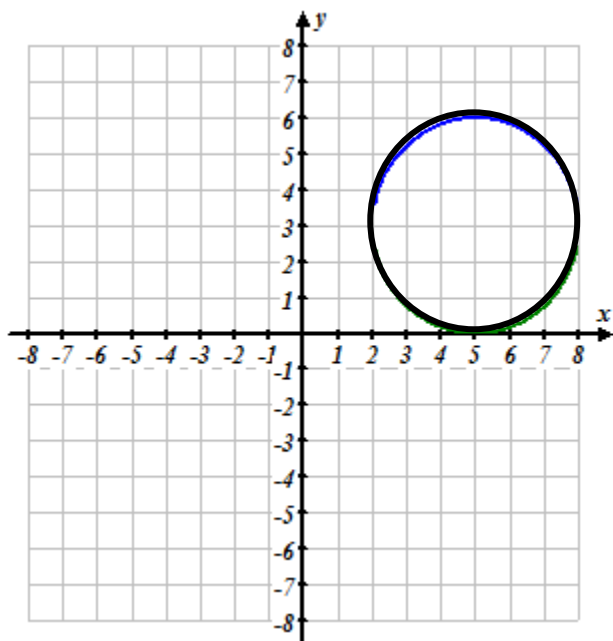
B. $(x+3)^2 + (y+1)^2 = 25$



C. $(x+2)^2 + (y-3)^2 = 18$



3. **Equations of Circles** Find the equation of each of the following:



a. $(x \quad)^2 + (y \quad)^2 = \quad$

b. $(x \quad)^2 + (y \quad)^2 = \quad$

4. **Equations of Circles** The following design is composed of 3 full circles and 2 semi-circles. Can you find the equations of each and put them in your calculator?

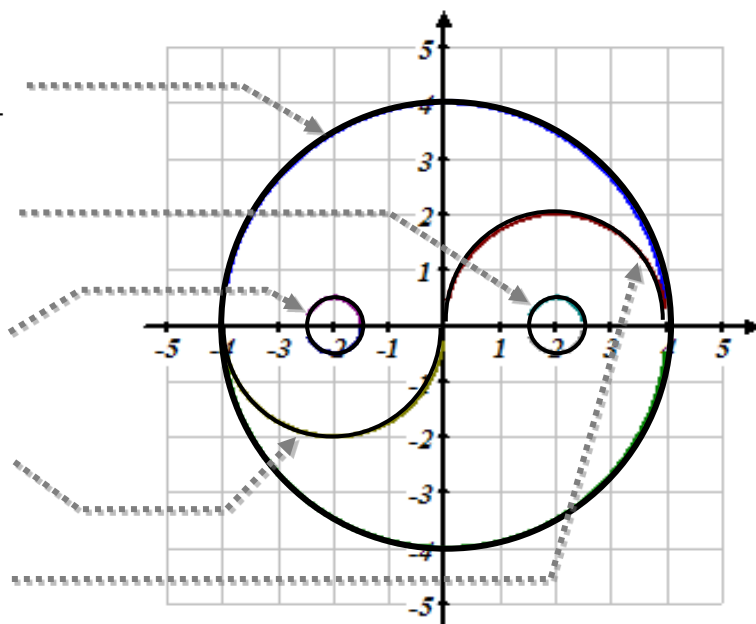
a. $(x \quad)^2 + (y \quad)^2 = \quad$

b. $(x \quad)^2 + (y \quad)^2 = \quad$

c. $(x \quad)^2 + (y \quad)^2 = \quad$

d. $(x \quad)^2 + (y \quad)^2 = \quad$

e. $(x \quad)^2 + (y \quad)^2 = \quad$

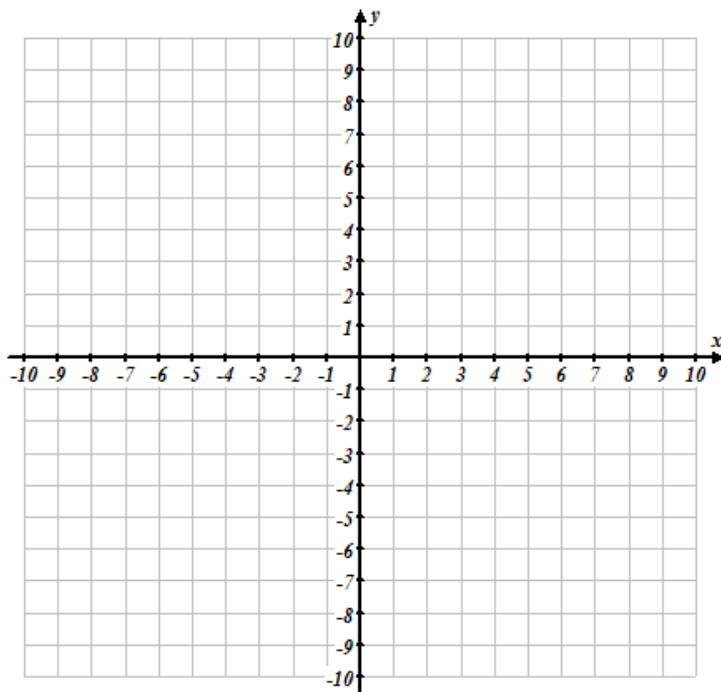
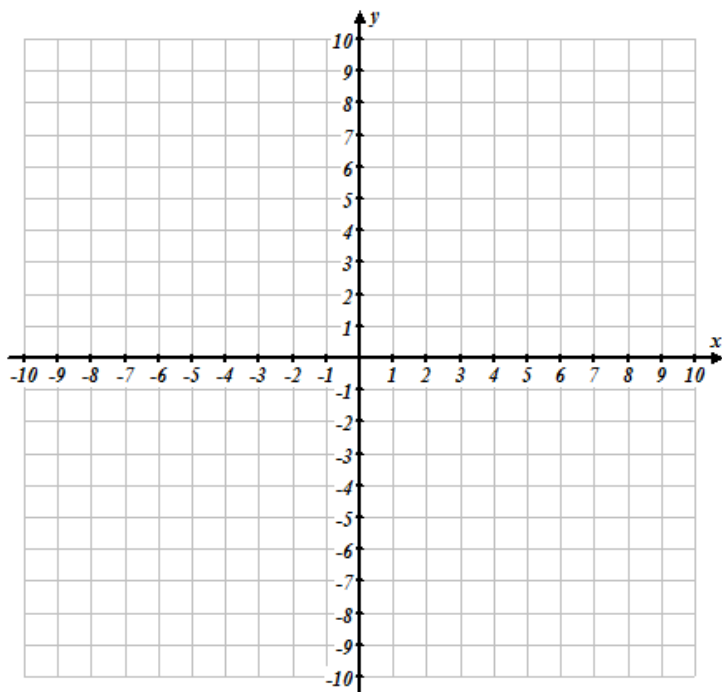


****** When you put these in your TI-83/84 calculator you will have to solve for y using the square root method you may have to use two equations to describe a complete circle. For example if you wanted to graph the complete circle $(x - 4)^2 + (y + 2)^2 = 9$. It would require that you use two equations $y_1 = \sqrt{9 - (x - 4)^2} - 2$ and $y_2 = -\sqrt{9 - (x - 4)^2} - 2$

5. Finding Standard form of circles. Put the following circles in standard form and graph them.

A. $x^2 + y^2 - 10y + 9 = 0$

B. $x^2 + y^2 - 2x + 8y = -8$



C. $x^2 + y^2 - 6y - 2x = 15$

D. $2x^2 + 2y^2 - 8x + 12y = 6$

