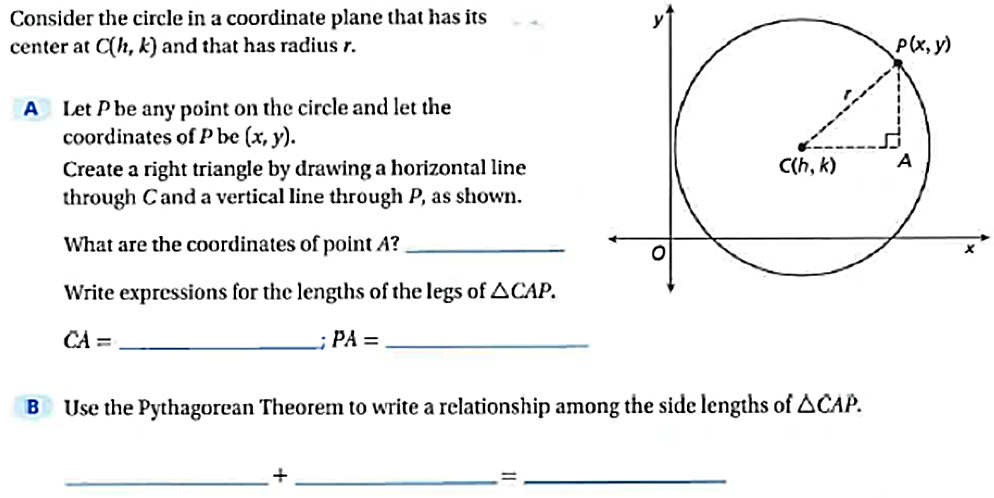
**Classwork: Derive & Practrice the Equation of a Circle**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**



Consider the circle in a coordinate plane that has its center at and that has a radius *r*.

**A**

A) Let *P* be any point on the circle and let the coordinates of *P* be .

Create a right triangle by drawing a horizontal line through *C* and a vertical line through *P*, as shown.

- What are the coordinates of point *A*? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- Write expressions for the lengths of the legs of .

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**B**

B) Use the Pythagorean Theorem to write a relationship among the side lengths of .

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**C**

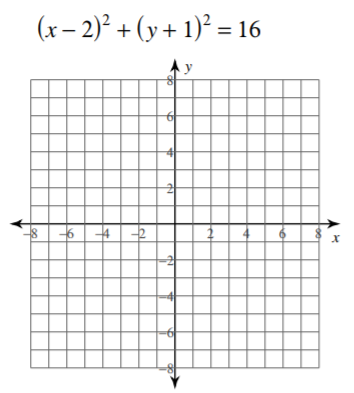
C) Equation of a Circle:

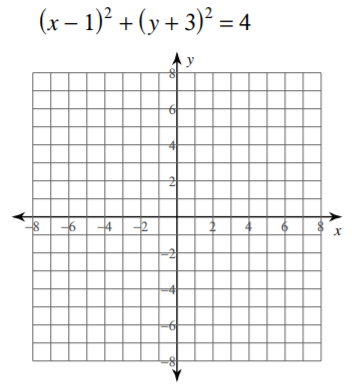
is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

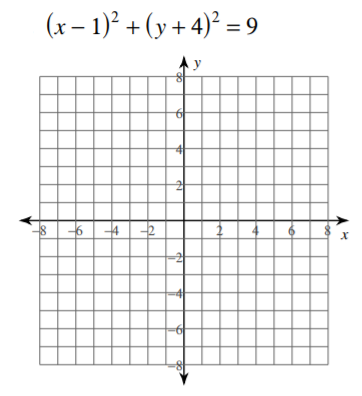
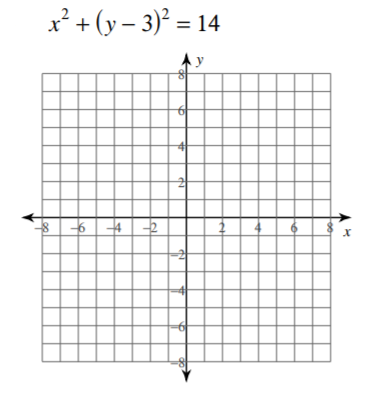
is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is the equation of a circle whose center is at (3 , -8) and radius is 5?
2. What is the equation of a circle whose center is at (6.5 , 9) and radius is ?
3. What is the center and the radius of the circle whose equations is .
4. What is the center and the radius of the circle whose equations is .

**Identify the center and radius of each. Then sketch the graph.**



1. 6.



1. 8.

**Use the information provided to write the equation of each circle. (Really gotta use your brain in #10!)**

1. Center: 10. Center:

Radius: Point on Circle: