Lesson 18: Recognizing Equations of Circles

Classwork

Opening Exercise

* 1. Express this as a trinomial:
  2. Express this as a trinomial:
  3. Factor the trinomial :
  4. Complete the square to solve the following equation:

**Example 1**

The following is the equation of a circle with radius and center Do you see why?

Exercise

1. Rewrite the following equations in the form

Example 2

What is the center and radius of the following circle?

Exercises

1. Identify the center and radius for each of the following circles.
2. Could the circle with equation have a radius of ? Why or why not?
3. Stella says the equation has a center of and a radius of . Is she correct? Why or why not?

Example 3

Could represent a circle?

Exercise

1. Identify the graphs of the following equations as a circle, a point, or an empty set.

Problem Set

1. Identify the center and radii of the following circles.
2. Sketch a graph of the following equations.
3. Chante claims that two circles given by and are externally tangent. She is right. Show that she is.
4. Draw a circle. Randomly select a point in the interior of the circle; label the point . Construct the greatest radius circle with center that lies within the circular region defined by the original circle. Hint: Draw a line through the center, the circle, and point