College Algebra Fundamentals

Section P-3 (Part 5): Graphs of Equations

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**:

* Students will be able to figure out the equation for a circle using the distance formula.
* Students will be able to write the equation of a circle using the radius and center.

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| **Main Idea** | **Notes** |
| **Vocabulary:**  **Example 1: Finding the Equation of a Circle** | Circle:  Radius:  A *unit circle* is a circle with a *radius of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_* whose *center is at the*  *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.* It is the circle on which *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*  *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.*  What is the equation for a circle with its center at the origin and a radius of length r?  What is the equation for the unit circle?  What is the equation of a circle with center at (0, 0) and radius of 2?  Graph the equation below.  http://s3.amazonaws.com/edcanvas-uploads/117591/local/1380306229/coordinate-plane1-1005x1024.png |
| **Example 2: Finding the Equation of a Circle** | What will happen to the equation if the center is not at the origin?    Use the distance formula to find the equation for this circle.    A circle can be located in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Assume \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_are the coordinates of a point on a circle. The center  of the circle is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and the radius is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Then the  equation of a circle is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  Draw a sketch below labeling all parts of the graph of a circle:  http://s3.amazonaws.com/edcanvas-uploads/117591/local/1380306229/coordinate-plane1-1005x1024.png |
| **Vocabulary:** |
| **Example 3: Write the Equation of a Circle** | Write the equation of a circle with a center at (0, 3) and a radius of 7. |
| **Example 4: Finding the Center and Radius from the Equation of a Circle** | What is the center and radius of the circle with the following equation? |
| **Example 5: Find the Equation of a Circle** | The point (-6, 4) lies on a circle whose center is at (-5, 0). Find the equation of this circle. |
| **Homework:** |  |