**Secondary Math 2 4.4 Homework Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_**

**The Equation of a Circle**

1. **Construct a graph of the circle. First identify the radius and the center of the circle**

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| a) | $$x^{2}+\left(y+5\right)^{2}=9$$Center: Radius: | b) | $$\left(x+4\right)^{2}+\left(y-3\right)^{2}=16$$Center: Radius: |

1. **Write an equation of the circle with the given information**

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| --- | --- | --- | --- |
| a) | Center $(-4,4)$ and radius 12 | b) |  |

**Review Problems:**

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|  | Find $\hat{BC}$and $\hat{CA}$ |  | Find y and z: |
|  | Find the arc length and area of sector $\hat{BEC}$.Area of sector $BEC=$Length of $\hat{BEC}=$ |  | Solve for x: *(Assume lines which appear to be tangent are tangent)* |

**Extended Understanding:**

1. A particular cell phone tower is designed to service a 12-mile radius. The tower is located at (–3, 5) on a coordinate plane whose units represent miles. What is the standard equation of the outer boundary of the region serviced by the tower? Is a cell phone user at (8, 0) within the service range? Explain.
2. A pizza restaurant will deliver up to 5 miles. The restaurant is located at the origin on a coordinate plane whose units represent miles. What is the standard equation of the outer boundary of the delivery region? Customers are located at A (4, 3), B (5, 0), and C (2,$\sqrt{21}$). Which of these customers, if any, are on the outer boundary? Explain.