1. For each equation of a circle, identify the center and the radius.

   $(x + 2)^2 + (y - 3)^2 = 36$

2. $x^2 - 2x + y^2 + 4y = 11$

3. The point (3,4) is on the circle with a center at the origin. Write an equation in standard form.

   Write an equation for the conic and Identify any important information:

4. Parabola with vertex at (3,2) and Focus (1,2)

5. Circle with center at (-2,5) and Radius 3

6. Ellipse with vertices at (-2,2) and (4,2) and co-vertices at (1,1) and (1,3)

7. Hyperbola with vertices at (5,0) and (-5,0) and Foci at (-7,0) and (7,0)

On problems 8-11, Graph and identify any important information:

8. Graph: $\frac{x^2}{16} - \frac{y^2}{9} = 1$

9. Graph: $x^2 + 4y = 0$

10. Graph: $4x^2 + 4y^2 = 16$

11. Graph: $\dfrac{(x+1)^2}{25} + \dfrac{(y+2)^2}{16} = 1$

On problems 12-15 Classify the conic section and write in Standard Form

12. $16x^2 - 9y^2 - 144 = 0$

13. $x^2 - 16x + 4y^2 - 40y + 148 = 0$

14. $x^2 + y^2 + 4x - 6y - 3 = 0$

15. $5x^2 + 20y = 0$

16. A cellular phone tower services a 12 mile radius. On a drive out to the coast, you head 9 miles west and 6 miles north. Are you in a region served by the tower? Explain why you are or are not.