DIRECTIONS: Graph each ellipse. Identify its center, direction of the major axis, verticies, co-verticies, and foci.

1. $\frac{x^2}{16} + \frac{y^2}{25} = 1$

2. $x^2 + 9y^2 = 36$

3. $x^2 + 4y^2 = 16$

4. $3x^2 + y^2 = 9$

5. $x^2 + 25y^2 = 100$

6. $2x^2 + y^2 = 8$

7. $5x^2 + 9y^2 = 45$

8. $x^2 + 9y^2 = 1$

DIRECTIONS: Find an equation for an ellipse having the given intercepts.

9. x-intercepts: ± 3
y-intercepts: ± 4

10. x-intercepts: ± 2
y-intercepts: $\pm \sqrt{2}$

11. x-intercepts: $\pm \sqrt{6}$
y-intercepts: $\pm 2\sqrt{3}$

DIRECTIONS: Find an equation of an ellipse with the given information.

12. Foci: $(0, -5), (0, 5)$
Sum of focal radii: 20

13. Foci: $(0, -4), (0, 4)$
Sum of focal radii: 24

14. Foci: $(-9, 0), (9, 0)$
Sum of focal radii: 30

<u>Example 1</u> – Graph the ellipse $\frac{x^2}{9} + \frac{y^2}{4} = 1$. Identify its center, direction of the major axis, verticies, co-verticies, and foci.

<u>Example 2</u> – Graph the ellipse $25x^2 + 4y^2 = 100$. Identify its center, direction of the major axis, verticies, co-verticies, and foci.

<u>Example 3</u> - Find an equation for an ellipse having the given intercepts.

     x-intercepts: ± 5
     y-intercepts: ± 2

<u>Example 4</u> – Find an equation of an ellipse with the given information.

     Foci: $(-6, 0), (6, 0)$
     Sum of focal radii: 18