

**DIRECTIONS:** Give the center and foci of the ellipse.

1.  $\frac{(x+3)^2}{16} + \frac{(y-5)^2}{12} = 1$

**DIRECTIONS:** Find an equation of an ellipse with the given information (*HINT:* Use the foci to find the center).

2. Foci:  $(0, 0), (0, 8)$   
Sum of focal radii: 12

3. Foci:  $(-3, -3), (-3, 3)$   
Sum of focal radii: 8

4. Foci:  $(-5, 1), (3, 1)$   
Sum of focal radii: 16

5. Foci:  $(-2, -3), (6, -3)$   
Sum of focal radii: 10

**DIRECTIONS:** Find the center, foci, vertices, co-vertices, and direction of major axis of the ellipses. Then draw their graphs (*HINT:* Create an equation of an ellipse by completing the square twice – once for  $x$  and once for  $y$  – in each problem).

6.  $x^2 + 9y^2 + 2x - 18y + 1 = 0$

7.  $9x^2 + 25y^2 + 36x - 150y + 36 = 0$