ELLIPSES

Sketch the graph; state the coordinates of the foci:

1. $4x^2 + 9y^2 - 16x + 90y + 205 = 0$

2. $4x^2 + 36y^2 + 40x - 288y + 532 = 0$

3. $49x^2 + 16y^2 + 98x - 64y - 671 = 0$

4. $25x^2 + 4y^2 - 150x + 32y + 189 = 0$

5. $x^2 + 4y^2 + 10x + 24y + 45 = 0$

6. $16x^2 + y^2 - 128x - 20y + 292 = 0$

7. $16x^2 + 25y^2 - 300y + 500 = 0$

8. $36x^2 + 9y^2 - 216x = 0$

Write an equation of an ellipse (in *standard form*) with center (0, 0) and the following characteristics:

9. focus (2, 0), x-intercept 4

10. focus (0, 3), y-intercept 5

11. focus (0, – 5), y-intercept 8

12. focus (3, 0), x-intercept – 6

13. $a = 3$, $b = 2$, width 4

14. $a = 2\sqrt{5}$, $b = 3\sqrt{2}$, width $6\sqrt{2}$