

## HYPERBOLAS

Sketch the graph; state the coordinates of the foci:

1.  $25x^2 - 16y^2 - 100x - 96y - 444 = 0$

2.  $4x^2 - 9y^2 + 16x + 108y - 344 = 0$

3.  $25x^2 - 9y^2 + 300x - 126y + 684 = 0$

4.  $4x^2 - 36y^2 - 40x + 216y - 80 = 0$

5.  $x^2 - y^2 + 4x + 16y - 69 = 0$

6.  $x^2 - y^2 - 14x - 8y + 37 = 0$

7.  $16x^2 - 9y^2 + 144 = 0$

8.  $25x^2 - 144y^2 - 3600 = 0$

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

9. foci  $(\pm 5, 0)$ , vertices  $(\pm 3, 0)$

10. foci  $(0, \pm 13)$ , vertices  $(0, \pm 5)$

11. foci  $(0, \pm 2)$ , vertices  $(0, \pm 1)$

12. foci  $(\pm \sqrt{5}, 0)$ , vertices  $(\pm 2, 0)$