

For the following exercises, sketch a graph of the hyperbola, labeling vertices and foci.

31. $\frac{x^2}{49} - \frac{y^2}{16} = 1$

32. $\frac{x^2}{64} - \frac{y^2}{4} = 1$

33. $\frac{y^2}{9} - \frac{x^2}{25} = 1$

34. $81x^2 - 9y^2 = 1$

35. $\frac{(y+5)^2}{9} - \frac{(x-4)^2}{25} = 1$

36. $\frac{(x-2)^2}{8} - \frac{(y+3)^2}{27} = 1$

$$37. \frac{(y-3)^2}{9} - \frac{(x-3)^2}{9} = 1$$

$$38. -4x^2 - 8x + 16y^2 - 32y - 52 = 0$$

$$39. x^2 - 8x - 25y^2 - 100y - 109 = 0$$

$$40. -x^2 + 8x + 4y^2 - 40y + 88 = 0$$

$$41. 64x^2 + 128x - 9y^2 - 72y - 656 = 0$$

$$42. 16x^2 + 64x - 4y^2 - 8y - 4 = 0$$