

10 Conic Sections

Sketch the graph of the parabola.

1. $y = -(x - 2)^2 + 3$
2. $y = 3(x + 1)^2 - 1$
3. $x - 4 = 2(y - 2)^2$
4. $x = -(y + 1)^2 - 3$

Write the equation of each circle. Sketch the graph.

5. Center $(0, 0)$ and radius 3
6. Center $(-1, 2)$ and radius 2
7. Center $(-1, 2)$ and radius 1

State the center and radius of each circle. Sketch the graph.

8. $(x - 1)^2 + y^2 = 4$
9. $(x + 1)^2 + (y - 1)^2 = 9$

For each equation of a circle, write in the standard equation form $(x - h)^2 + (y - k)^2 = r^2$. State the center and radius of each circle. Sketch the graph.

10. $x^2 + 4x + y^2 - 6x = 3$
11. $x^2 - 2x + y^2 + 4y = 4$

Sketch the graph of each ellipse. Label the x - and y -intercepts.

12. $\frac{x^2}{4} + \frac{y^2}{9} = 1$
13. $\frac{x^2}{16} + \frac{y^2}{4} = 1$
14. $x^2 + \frac{y^2}{9} = 1$

15. $4x^2 + 9y^2 = 36$

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

Sketch the graph of each hyperbola. Label the intercepts. Sketch the asymptotes and give the equations for the asymptotes.

17. $\frac{x^2}{4} - \frac{y^2}{9} = 1$

18. $\frac{y^2}{4} - \frac{x^2}{16} = 1$

19. $4x^2 - 9y^2 = 36$

20. $y^2 - 16x^2 = 16$