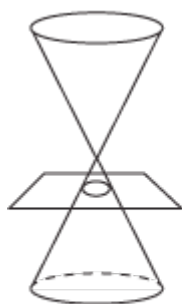
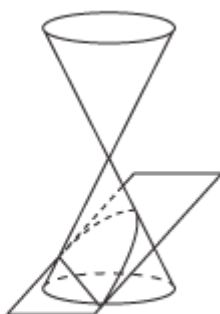


## Types of Conics



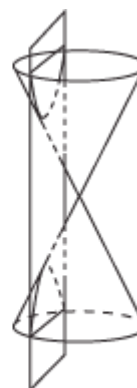
circle



parabola



ellipse



hyperbola

## Circles

- We find the radius using the distance formula.  $r = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
- **Standard form** of a circle is  $(x - h)^2 + (y - k)^2 = r^2$  for center  $(h, k)$  and radius,  $r$ .
- **General form** of a circle is  $x^2 + y^2 + ax + by + c = 0$ .

Example: Identify the center and radius of each circle.

a)  $(x - 2)^2 + (y - 4)^2 = 36$

b)  $(x + 5)^2 + y^2 = 25$

c)  $x^2 + (y - 2)^2 = \frac{1}{9}$

Try to figure out what the last term will be in order to create **perfect square trinomials**:

Perfect Square Trinomial = Binomial Squared

$$x^2 + 12x + \underline{\hspace{2cm}} = (\quad)^2$$

$$x^2 - 14x + \underline{\hspace{2cm}} = (\quad)^2$$

$$x^2 - 10x + \underline{\hspace{2cm}} = (\quad)^2$$

$$x^2 + 5x + \underline{\hspace{2cm}} = (\quad)^2$$

**Example 1:** Identify the center and radius of each circle by writing the equation in standard form:

$$x^2 + y^2 - 8x + 6y - 11 = 0$$

**Example 2:** Identify the center and radius of each circle by writing the equation in standard form:

$$2x^2 + 2y^2 - 12x + 8y - 24 = 0$$

**Example 3:** Identify the center and radius of a circle with the equation

$$x^2 + y^2 + y = \frac{3}{4}$$