

Investigation

For each step below, use the illustrations in the text or other models that are available to help you position a flashlight beam to form the conic section.

1. Hold the flashlight so that the beam of light forms a circle on the wall. What is the relationship between the cone represented by the light beam and the plane represented by the wall?
2. Hold the flashlight so that the beam of light forms an ellipse on the wall. What is the relationship between the cone represented by the light beam and the plane represented by the wall?
3. Hold the flashlight so that the beam of light forms a parabola on the wall. What is the relationship between the cone represented by the light beam and the plane represented by the wall?
4. Hold the flashlight so that the beam of light forms one branch of a hyperbola on the wall. What is the relationship between the cone represented by the light beam and the plane represented by the wall?
5. Hold two flashlights so that the beams of light form both branches of a hyperbola on the wall. How is the position of the light beam different for parabolas and hyperbolas?