1. The lonely planet Narcissus orbits the distant star Lethe. Remember that physics tells us that the sun Lethe must be one of the foci of this ellipse. At its closest, Narcissus is a mere 2 million miles away from its sun while at its farthest, it is 18 million miles away. Setting the origin at the sun Lethe, find an equation for the elliptical orbit the planet Narcissus follows.

Hint: \( a^2 - b^2 = c^2 \)
2. A Frisbee flies through the air in the parabolic arc shown below, reaching a maximum height of 20 meters and traveling a distance of 40 meters before hitting the ground. Tracing the path of this parabola, an intrepid mathematician happens to notice that the parabola’s focus lies on the ground directly beneath the peak of the Frisbee’s path. Taking the point from which it was thrown to be the origin, give an equation that describes this Frisbee’s path.