7.1: Introduction to Conics

In this chapter, we study the Conic Sections - literally 'sections of a cone'. Imagine a double-napped cone as seen below being 'sliced' by a plane.

If we slice the cone with a horizontal plane the resulting curve is a circle.
Tilting the plane ever so slightly produces an **ellipse**.
If the plane cuts parallel to the cone, we get a **parabola**.
If we slice the cone with a vertical plane, we get a hyperbola.
If the slicing plane contains the vertex of the cone, we get the so-called ‘degenerate’ conics: a point, a line, or two intersecting lines.
We will focus the discussion on the non-degenerate cases: circles, parabolas, ellipses, and hyperbolas, in that order. To determine equations which describe these curves, we will make use of their definitions in terms of distances.

Contributors and Attributions

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