

Poincaré Disk Model

This sketch depicts the hyperbolic plane H^2 using the Poincaré disk model. In this model, a line through two points is defined as the Euclidean arc passing through the points and perpendicular to the circle. Use this document's custom tools to perform constructions on the hyperbolic plane, comparing your findings to equivalent constructions on the Euclidean plane.

Disk Controls

Hyperbolic Parallel Axiom

1) Let the students ponder this for a bit - they may come up with it on their own.

2) Regardless, help them understand this: Create Hyperbolic line m using the Hyperbolic tools.

Choose Hyperbolic segment and create AB [the boundary of the disk AND m will both be highlighted red, so this is an "ideal" point as in the books language about ideal triangles]

Similarly use the Hyperbolic segment to create AC [the boundary of the disk and m will both be highlighted red].

Notice that any line through A that ends up between B and C will intersect m , while any other line through A will not intersect m .

