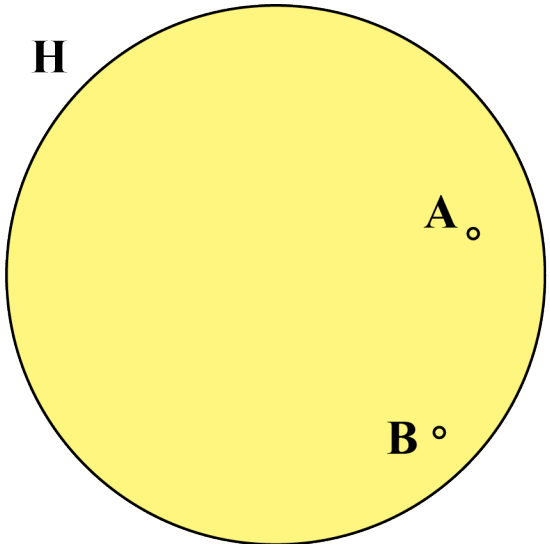
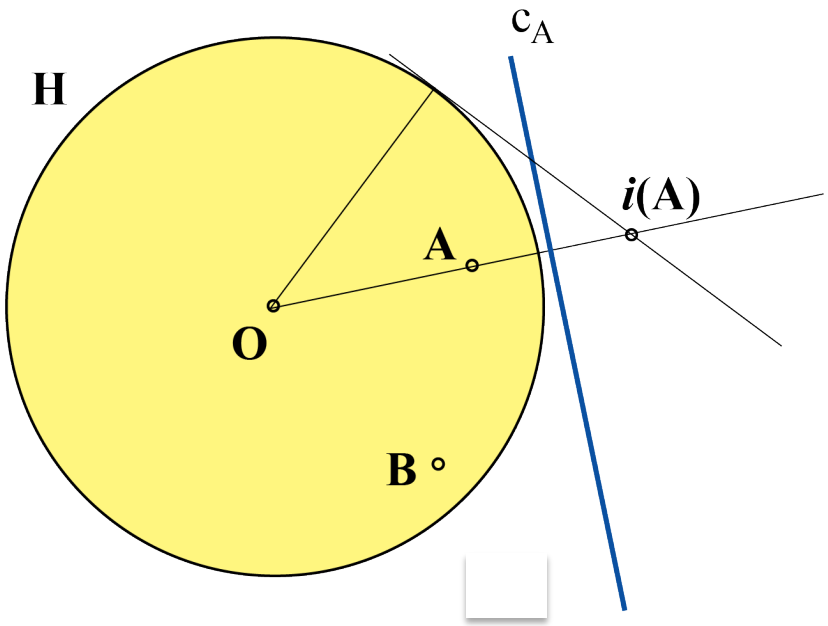
# HYPERBOLIC GEOMETRY, PART 2

**Basic construction #3. Given two points A and B, construct the unique *h*-line passing through both.**



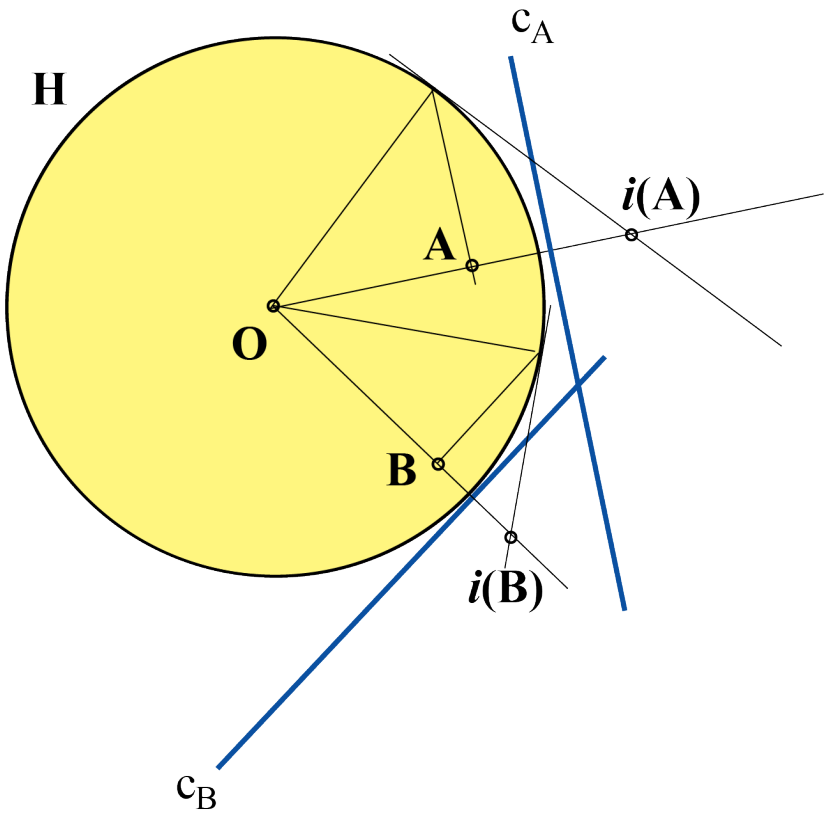

Initially we are given the points A and B within H.



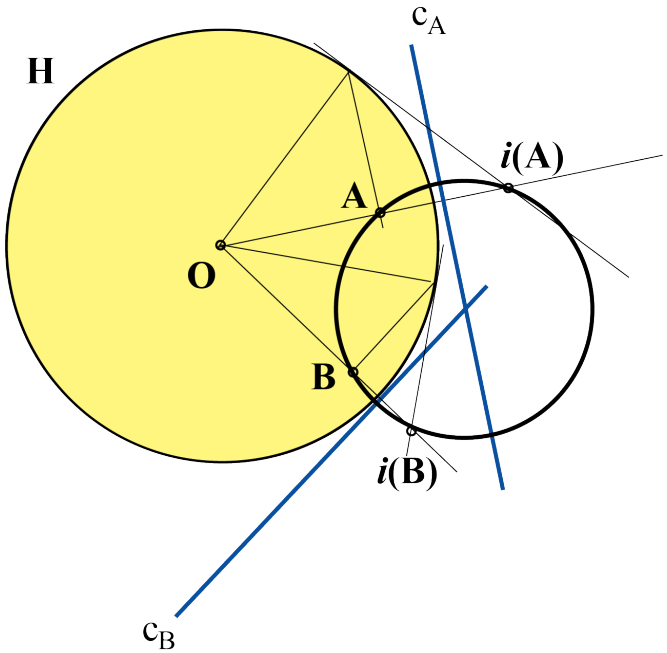

Repeat construction #2; ignore the point B.

There are two options at this stage:

**Option 1.**

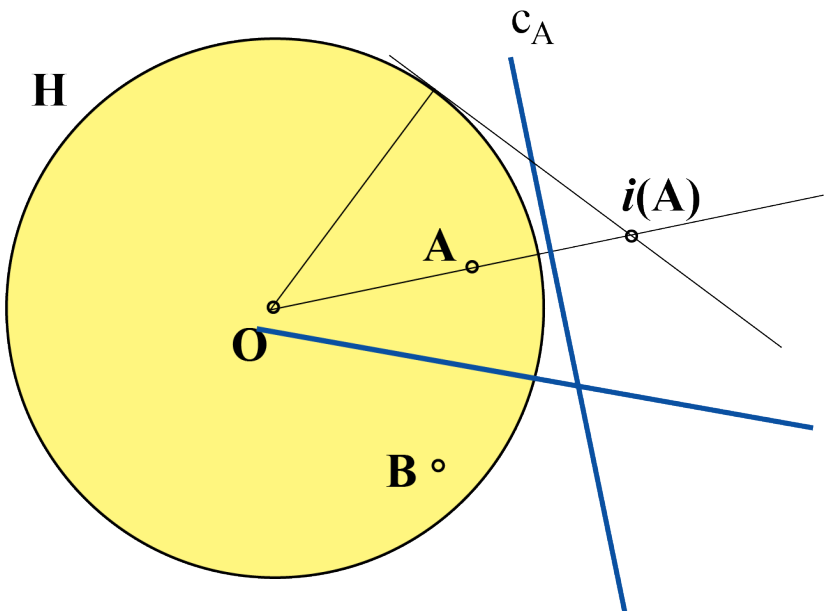



Apply construction 2 to the point B; where $c_A$ and $c_B$ intersect is the desired center.

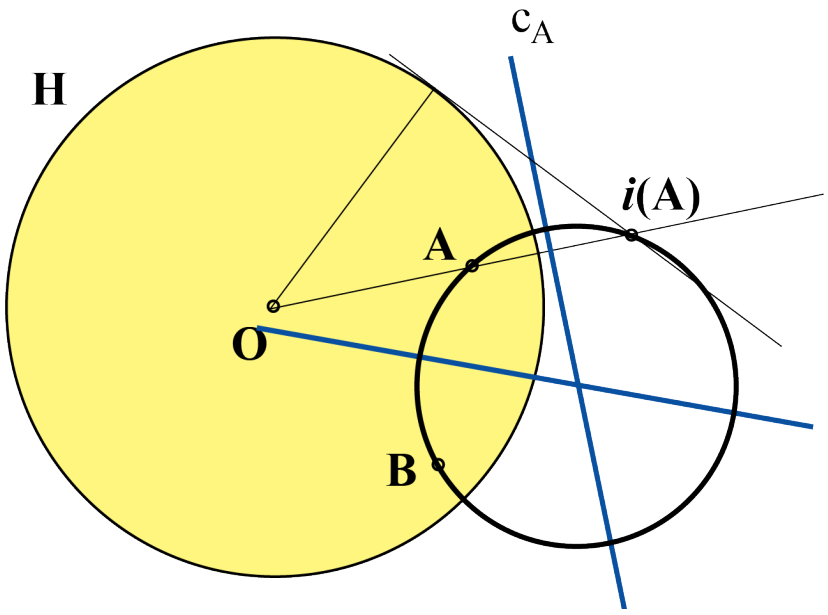



Draw the circle passing through A (It will also pass through B).

OPTION 2 (simpler)

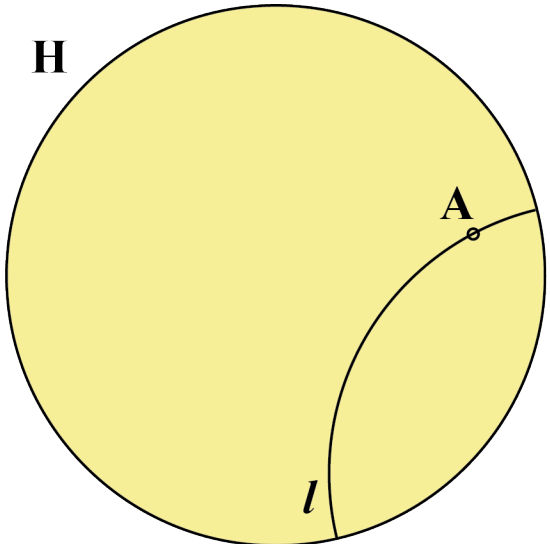



Bisect AB; where this bisector and $c_A$ intersect is the desired center.




Draw the circle passing through A (It will also pass through B).

**Basic construction #4. Given and h-line *l* and a point A on it, construct the unique *h*-line passing through A and intersecting *l* at the right angle.**




This is the setup.

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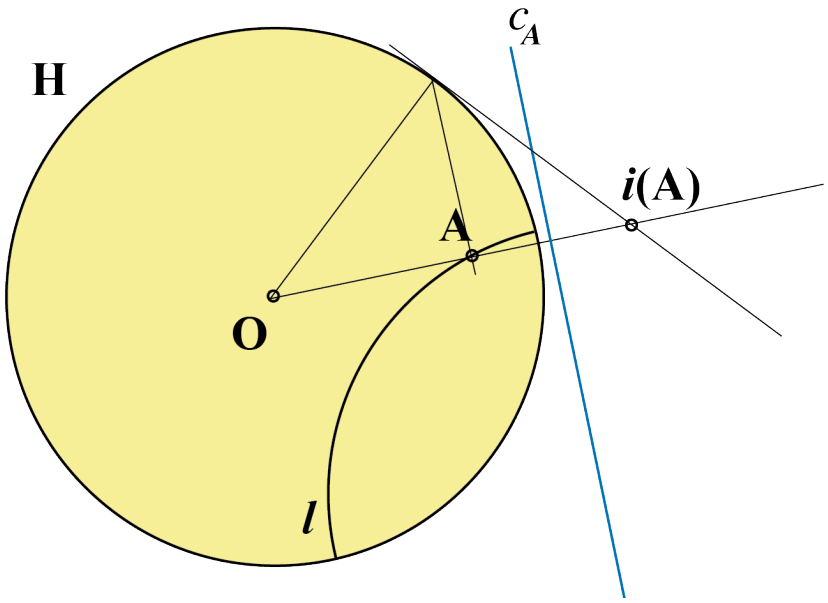


Repeat the construction #2 for the point A. (Ignore *l*).

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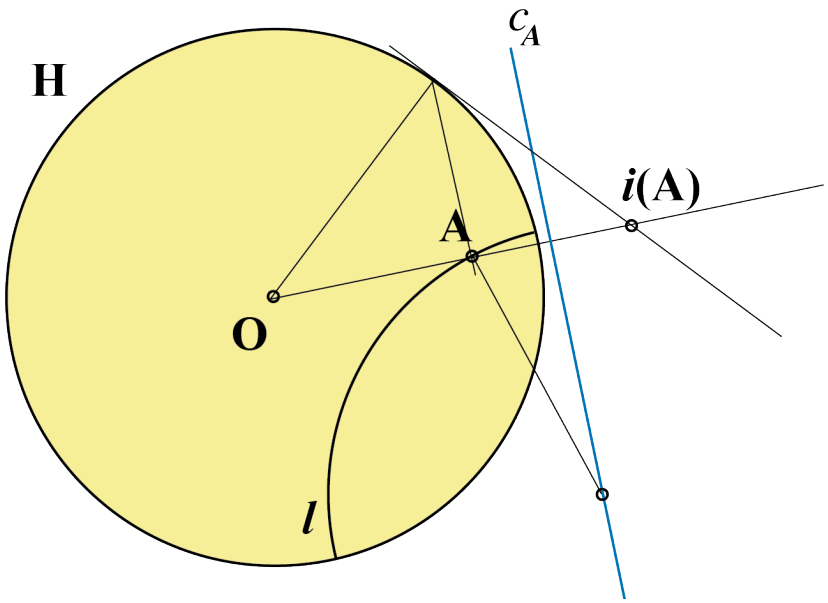
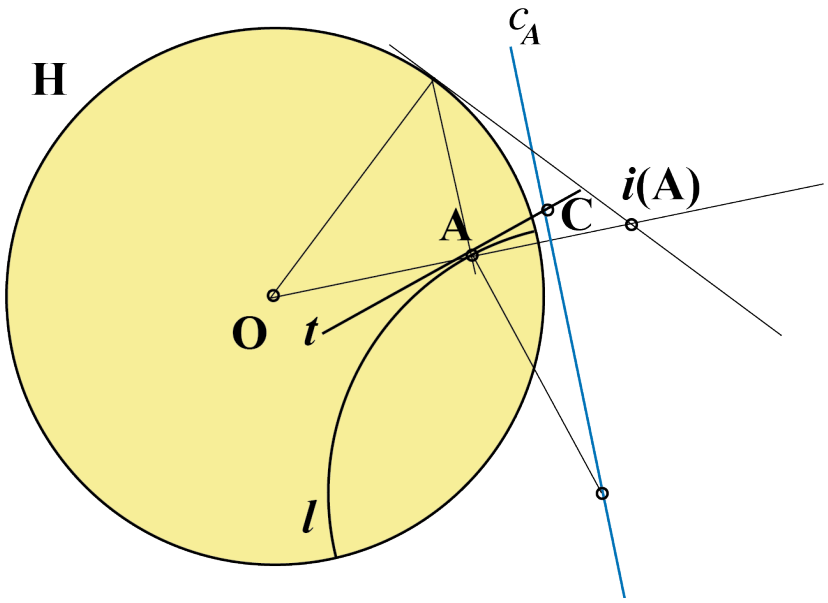
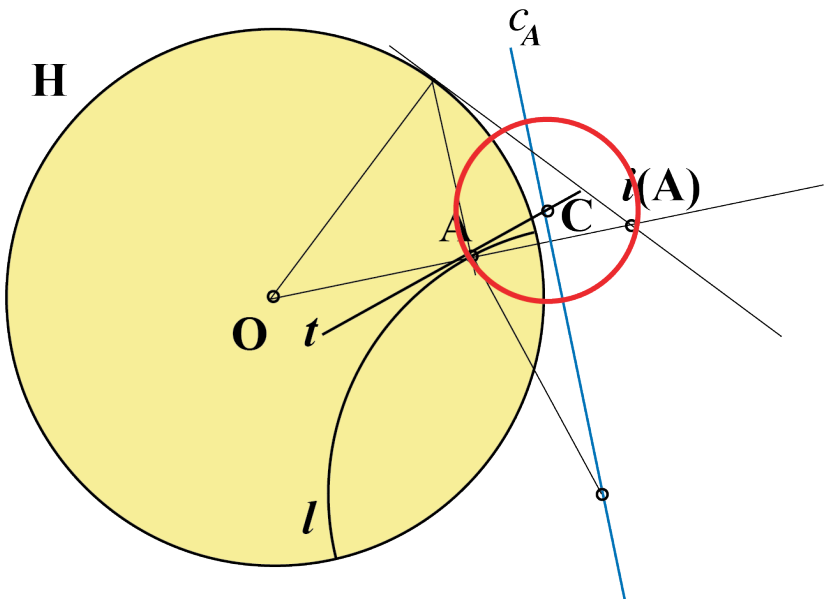



Find the center of the circle *l* (an old construction) and connect it to A to get to one radius.




Construct the perpendicular to that radius at A; get the tangent *t*. Note the intersection C of *t* with $c_A$.




Draw the circle centered at C and passing through A.