Assignment 7

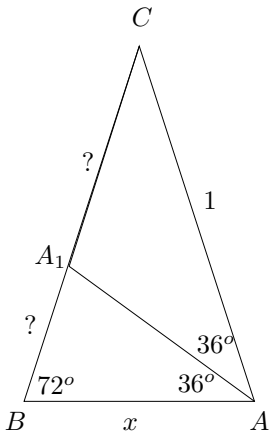
Oral questions

No oral questions assigned due to the upcoming midterm.

Questions to be answered in writing

Questions 1 and 2 are about Hyperbolic Geometry, the last question is about Euclidean Geometry.

1. Prove Theorem 8.7.
2. Assume that the lines ℓ and ℓ' have a common perpendicular line segment MM'. Prove that MM' is the shortest segment between any point of ℓ and any point of ℓ'. (Hint: Assume $A \in \ell$, $A' \in \ell'$ and compare AA' to MM'. Use the written exercise of Assignment 6 when AA' is perpendicular to ℓ and then use the third oral exercise of Assignment 6 in the other case.)
3. Use the picture below to find an exact formula for $\cos(72^o) = x/2$.



   Prove your claim using similarity of triangles and the angle bisector theorem.