

Homework 10 due Friday 4/8

1. (10 points) Let $\gamma, \tilde{\gamma}$ be two circles in a Euclidean plan with centers P and \tilde{P} . Assume they intersect in two points A, B . Show that $\angle PA\tilde{P} = \angle PB\tilde{P}$.
2. (15 points) p. 173, problem 24.
3. (15 points) p. 173, problem 25.
4. We only proved incidence axioms 2 and 3 for the Poincaré disk model for lines coming from circles. Prove the axioms for the lines coming from diameters as well. More precisely, let l be a line (in the Euclidean sense) through \hat{O} . Then by definition $\hat{l} = \{P \in l \mid P \text{ in the interior of } \hat{\gamma}\}$ is a line in the P-model. Now show
 - (a) (10 points) There exists a point in the disk which is not on l .
 - (b) (10 points) \hat{l} contains at least two points.