

Geometry III/IV, Problems Class 3

Wednesday, February 28

P3.1. Consider a hyperbolic orange of radius r with a pulp of radius λr , $\lambda < 1$, and a thin peel which is only $(1 - \lambda)r$ thick. Show that for large $r \rightarrow \infty$ almost all volume of the orange is the peel.

P3.2. Triangles with some vertices at the absolute:

- (a) AAA congruence does work for all triangles; ASA also works if it makes sense.
- (b) SAS and SSS do not work for triangles with infinite sides.
- (c) All usual formula work when they make sense (i.e. when entries are finite).

P3.3. Constructions in the Klein model:

- (a) midpoint of a segment;
- (b) angle bisector;
- (c) centre of a given circle;
- (d) inscribed circle for a triangle;
- (e) circumscribed circle for a triangle (when exists)

Remark. Circles in Klein model are represented by ellipses.