

## Geometry III/IV, Hints: weeks 13–14

### Hyperbolic geometry: conformal models

- 13.3. Do the same as in the Euclidean or spherical case.
  - 13.4. Look at the angle sum of some quadrilateral.
  - 13.5. Look at the angle sum.
  - 13.6. Look at the angle sum of some polygon.
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- 14.1. Fix one point and the rays from it, then move continuously another point along the ray.
  - 14.2. Use continuous deformation and common perpendicular of ultra-parallel lines.
  - 14.3. Use the isometry group to have a symmetric picture.
  - 14.4. Use the isometry group to simplify the problem.
  - 14.5. Do the same as in the Euclidean or spherical case.
  - 14.6. You can either use continuous deformations, or 14.1 and reflections.
  - 14.7. (a) and (b): similar to the Euclidean/spherical case.  
(c) use Poincaré disc model and compare to Euclidean case.