Feedback 7-8

- **Question 7.2:**
  - Everybody got it right that we need to map the triangle to a regular one (by affine map).
  - Then many works claimed that the hexagon is mapped to a regular hexagon - which is wrong: the regular hexagon have 3 pairs of parallel sides, while the corresponding sides of the initial hexagon intersect. As parallelism is preserved by affine maps, this means that the image cannot be regular.
  - Luckily, this does not affects the proof too much, as the hexagon still has 3 reflection symmetries with respect to the diagonals (what is looses comparing to the regular one, are 3 symmetries with respect to side perpendicular bisectors, but we are not using these symmetries anyway).
- **Question 7.4:**
  - This question is nicely done in many works by similarity in Euclidean case and by sine law in spherical one.
  - Of course, one could use the sine law also for the Euclidean case.
  - One can not use similarity on S^2!!!
    There are no similar triangles and no parallel lines on the sphere!
- **Question 7.8:**
  - In this question the only tricky part was to find $1 - \lambda$ in (b)
    (and I have no real advise how to do it if you are stuck...)
- **Question 8.3:**
  - In this question one needs to find a cross-ratio of 4 (collinear) points in $\mathbb{R}P^2$, or, equivalently, a cross-ratio of 4 (co-planar) lines in $\mathbb{R}^3$. To do this, one should cross the 4 lines by some other line l', and compute the cross-ratio for intersection points.
  - The danger in the question was that three of the four points already were lying on a line. Then many students decided to call that line l' and to say the last point is not lying there, so it will get coordinate ∞ on l'. This is wrong! You still need to draw a line l_4 through that last point and the origin and to find the intersection point $l' \cap l_4$. You will only give the coordinate ∞ to that point if your line l_4 is parallel to l'.