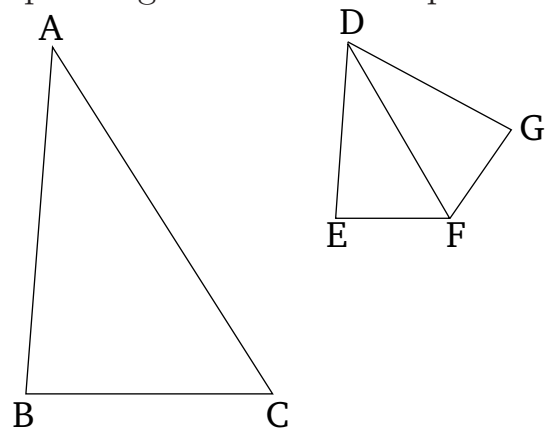
Book 6
Proposition 6

If two triangles have one angle equal to one angle, and the sides about the equal angles proportional, then the triangles will be equiangular, and will have the angles which corresponding sides subtend equal.



Let ABC and DEF be two triangles having one angle, BAC, equal to one angle, EDF (respectively), and the sides about the equal angles proportional, (so that) as BA (is) to AC, so ED (is) to DF. I say that triangle ABC is equiangular to triangle DEF, and will have angle ABC equal to DEF, and (angle) ACB to DFE.

For let (angle) FDG, equal to each of BAC and EDF, and (angle) DFG, equal to ACB, have been constructed on the straight-line AF at the points D and F on it (respectively) [Prop. 1.23]. Thus, the remaining angle at B is equal to the remaining angle at G [Prop. 1.32].

Thus, triangle ABC is equiangular to triangle DGF. Thus, proportionally, as BA (is) to AC, so GD (is) to DF [Prop. 6.4]. And it was also assumed that as BA