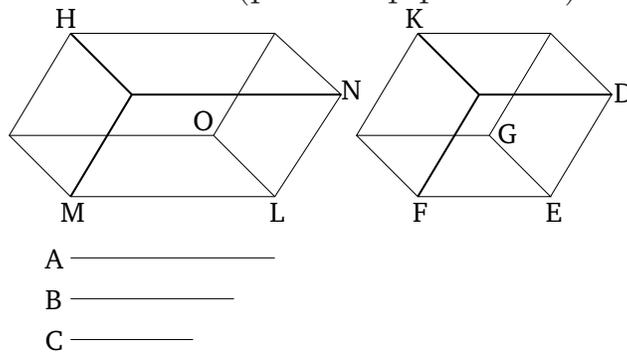


Book 11

Proposition 36

If three straight-lines are (continuously) proportional then the parallelepiped solid (formed) from the three (straight-lines) is equal to the equilateral parallelepiped solid on the middle (straight-line which is) equiangular to the aforementioned (parallelepiped solid).



Let A , B , and C be three (continuously) proportional straight-lines, (such that) as A (is) to B , so B (is) to C . I say that the (parallelepiped) solid (formed) from A , B , and C is equal to the equilateral solid on B (which is) equiangular with the aforementioned (solid).

Let the solid angle at E , contained by DEG , GEF , and FED , be set out. And let DE , GE , and EF each be made equal to B . And let the parallelepiped solid EK have been completed. And (let) LM (be made) equal to A . And let the solid angle contained by NLO , OLM , and MLN have been constructed on the straight-line LM , and at the point L on it, (so as to be) equal to the solid angle E [Prop. 11.23]. And let LO be made equal to B , and LN equal to C . And since as A (is) to B , so B (is) to C , and A (is) equal to LM , and B

to each of LO and ED , and C to LN , thus as LM (is) to EF , so DE (is) to LN . And (so) the sides around the equal angles NLM and DEF are reciprocally proportional. Thus, parallelogram MN is equal to parallelogram DF [Prop. 6.14]. And since the two plane rectilinear angles DEF and NLM are equal, and the raised straight-lines stood on them (at their apexes), LO and EG , are equal to one another, and contain equal angles respectively with the original straight-lines (forming the angles), the perpendiculars drawn from points G and O to the planes through NLM and DEF (respectively) are thus equal to one another [Prop. 11.35 corr.]. Thus, the solids LH and EK (have) the same height. And parallelepiped solids on equal bases, and with the same height, are equal to one another [Prop. 11.31]. Thus, solid HL is equal to solid EK . And LH is the solid (formed) from A , B , and C , and EK the solid on B . Thus, the parallelepiped solid (formed) from A , B , and C is equal to the equilateral solid on B (which is) equiangular with the aforementioned (solid). (Which is) the very thing it was required to show.