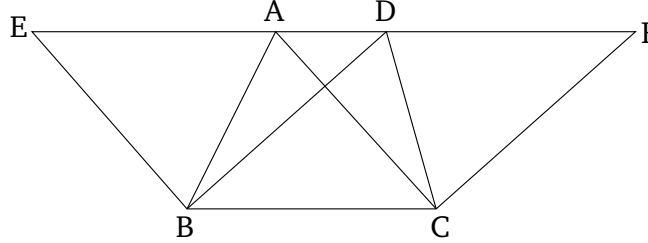


Book 1

Proposition 37

Triangles which are on the same base and between the same parallels are equal to one another.



Let ABC and DBC be triangles on the same base BC , and between the same parallels AD and BC . I say that triangle ABC is equal to triangle DBC .

Let AD have been produced in both directions to E and F , and let the (straight-line) BE have been drawn through B parallel to CA [Prop. 1.31], and let the (straight-line) CF have been drawn through C parallel to BD [Prop. 1.31]. Thus, $EBCA$ and $DBCF$ are both parallelograms, and are equal. For they are on the same base BC , and between the same parallels BC and EF [Prop. 1.35]. And the triangle ABC is half of the parallelogram $EBCA$. For the diagonal AB cuts the latter in half [Prop. 1.34]. And the triangle DBC (is) half of the parallelogram $DBCF$. For the diagonal DC cuts the latter in half [Prop. 1.34]. [And the halves of equal things are equal to one another.][†] Thus, triangle ABC is equal to triangle DBC .

Thus, triangles which are on the same base and between the same parallels are equal to one another. (Which is) the very thing it was required to show.