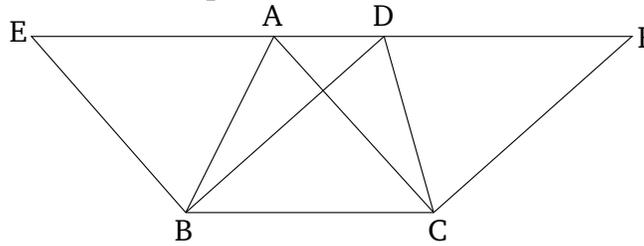


# Book 1

## 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  $DCBF$  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  $DCBF$ . For the diagonal  $DC$  cuts the latter in half [Prop. 1.34]. [And the halves of equal things are equal to one another.]<sup>†</sup> 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.