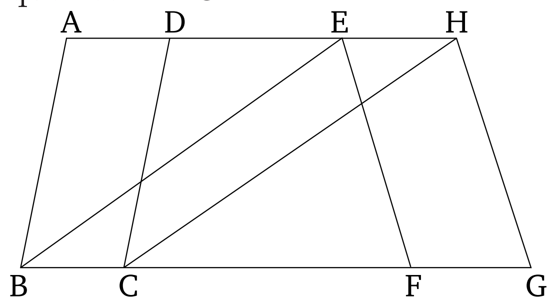
Book 1
Proposition 36

Parallelograms which are on equal bases and between the same parallels are equal to one another.

Let $ABCD$ and $EFGH$ be parallelograms which are on the equal bases BC and FG, and (are) between the same parallels AH and BG. I say that the parallelogram $ABCD$ is equal to $EFGH$.



For let BE and CH have been joined. And since BC is equal to FG, but FG is equal to EH [Prop. 1.34], BC is thus equal to EH. And they are also parallel, and EB and HC join them. But (straight-lines) joining equal and parallel (straight-lines) on the same sides are (themselves) equal and parallel [Prop. 1.33] [thus, EB and HC are also equal and parallel]. Thus, $EBCH$ is a parallelogram [Prop. 1.34], and is equal to $ABCD$. For it has the same base, BC, as ($ABCD$), and is between the same parallels, BC and AH, as ($ABCD$) [Prop. 1.35]. So, for the same (reasons), $EFGH$ is also equal to the same (parallelogram) $EBCH$ [Prop. 1.34]. So that the parallelogram $ABCD$ is also equal to $EFGH$.

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