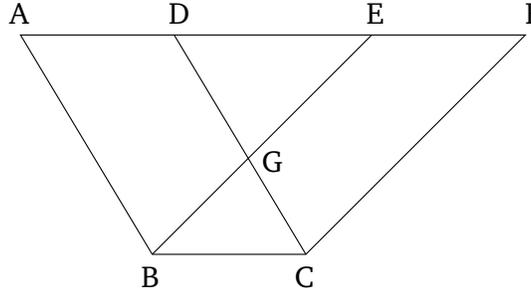


Book 1

Proposition 35

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



Let $ABCD$ and $EBCF$ be parallelograms on the same base BC , and between the same parallels AF and BC . I say that $ABCD$ is equal to parallelogram $EBCF$.

For since $ABCD$ is a parallelogram, AD is equal to BC [Prop. 1.34]. So, for the same (reasons), EF is also equal to BC . So AD is also equal to EF . And DE is common. Thus, the whole (straight-line) AE is equal to the whole (straight-line) DF . And AB is also equal to DC . So the two (straight-lines) EA , AB are equal to the two (straight-lines) FD , DC , respectively. And angle FDC is equal to angle EAB , the external to the internal [Prop. 1.29]. Thus, the base EB is equal to the base FC , and triangle EAB will be equal to triangle DFC [Prop. 1.4]. Let DGE have been taken away from both. Thus, the remaining trapezium $ABGD$ is equal to the remaining trapezium $EGCF$. Let triangle GBC have been added to both. Thus, the whole parallelogram $ABCD$ is equal to the whole parallelogram $EBCF$.

Thus, parallelograms 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.