

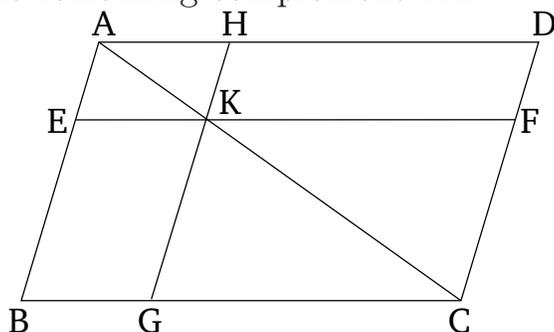
Book 1

Proposition 43

For any parallelogram, the complements of the parallelograms about the diagonal are equal to one another.

Let $ABCD$ be a parallelogram, and AC its diagonal. And let EH and FG be the parallelograms about AC , and BK and KD the so-called complements (about AC). I say that the complement BK is equal to the complement KD .

For since $ABCD$ is a parallelogram, and AC its diagonal, triangle ABC is equal to triangle ACD [Prop. 1.34]. Again, since EH is a parallelogram, and AK is its diagonal, triangle AEK is equal to triangle AHK [Prop. 1.34]. So, for the same (reasons), triangle KFC is also equal to (triangle) KGC . Therefore, since triangle AEK is equal to triangle AHK , and KFC to KGC , triangle AEK plus KGC is equal to triangle AHK plus KFC . And the whole triangle ABC is also equal to the whole (triangle) ADC . Thus, the remaining complement BK is equal to the remaining complement KD .



Thus, for any parallelogramic figure, the complements of the parallelograms about the diagonal are equal to one another. (Which is) the very thing it was required to show.