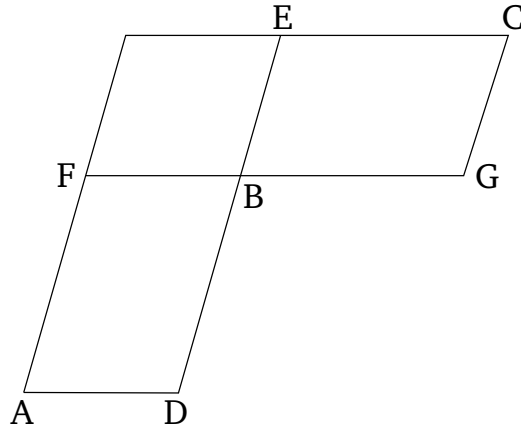# Book 6
Proposition 14

In equal and equiangular parallelograms the sides about the equal angles are reciprocally proportional. And those equiangular parallelograms in which the sides about the equal angles are reciprocally proportional are equal.

Let AB and BC be equal and equiangular parallelograms having the angles at B equal. And let DB and BE be laid down straight-on (with respect to one another). Thus, FB and BG are also straight-on (with respect to one another) [Prop. 1.14]. I say that the sides of AB and BC about the equal angles are reciprocally proportional, that is to say, that as DB is to BE, so GB (is) to BF.

For let the parallelogram FE have been completed. Therefore, since parallelogram AB is equal to parallelogram BC, and FE (is) some other (parallelogram), thus as (parallelogram) AB is to FE, so (parallelogram) BC (is) to FE [Prop. 5.7]. But, as (parallelogram) AB (is) to FE, so DB (is) to BE, and as (parallelogram) BC (is) to FE, so GB (is) to BF [Prop. 6.1]. Thus, also,

as DB (is) to BE, so GB (is) to BF. Thus, in parallelograms AB and BC the sides about the equal angles are reciprocally proportional.

And so, let DB be to BE, as GB (is) to BF. I say that parallelogram AB is equal to parallelogram BC.

For since as DB is to BE, so GB (is) to BF, but as DB (is) to BE, so parallelogram AB (is) to parallelogram FE, and as GB (is) to BF, so parallelogram BC (is) to parallelogram FE [Prop. 6.1] , thus, also, as (parallelogram) AB (is) to FE, so (parallelogram) BC (is) to FE [Prop. 5.11] . Thus, parallelogram AB is equal to parallelogram BC [Prop. 5.9] .

Thus, in equal and equiangular parallelograms the sides about the equal angles are reciprocally proportional. And those equiangular parallelograms in which the sides about the equal angles are reciprocally proportional are equal. (Which is) the very thing it was required to show.