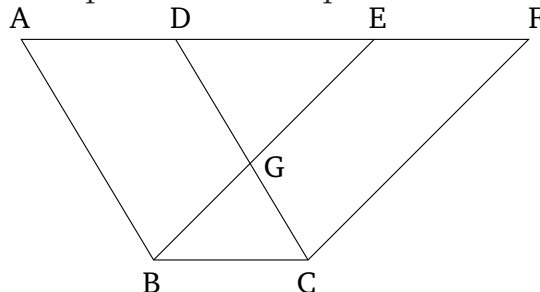


# Book 1

## Proposition 35

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



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

For since  $ABCE$  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  $ABCE$  is equal to the whole parallelogram  $ABCE$ .

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.