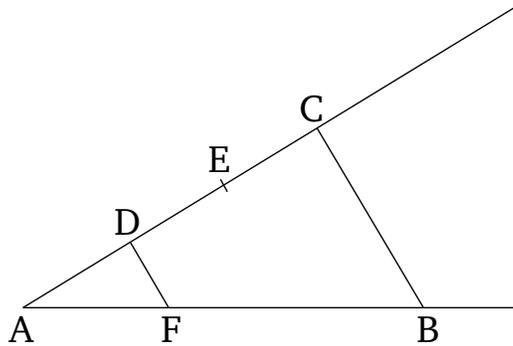


# Book 6

## Proposition 9

To cut off a prescribed part from a given straight-line.



Let  $AB$  be the given straight-line. So it is required to cut off a prescribed part from  $AB$ .

So let a third (part) have been prescribed. [And] let some straight-line  $AC$  have been drawn from (point)  $A$ , encompassing a random angle with  $AB$ . And let a random point  $D$  have been taken on  $AC$ . And let  $DE$  and  $EC$  be made equal to  $AD$  [Prop. 1.3]. And let  $BC$  have been joined. And let  $DF$  have been drawn through  $D$  parallel to it [Prop. 1.31].

Therefore, since  $FD$  has been drawn parallel to one of the sides,  $BC$ , of triangle  $ABC$ , then, proportionally, as  $CD$  is to  $DA$ , so  $BF$  (is) to  $FA$  [Prop. 6.2]. And  $CD$  (is) double  $DA$ . Thus,  $BF$  (is) also double  $FA$ . Thus,  $BA$  (is) triple  $AF$ .

Thus, the prescribed third part,  $AF$ , has been cut off from the given straight-line,  $AB$ . (Which is) the very thing it was required to do.