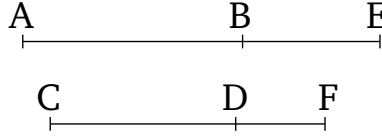


# Book 10

## Proposition 107

A (straight-line) commensurable (in length) with a (straight-line) which with a medial (area) makes a medial whole is itself also a (straight-line) which with a medial (area) makes a medial whole.



Let  $AB$  be a (straight-line) which with a medial (area) makes a medial whole, and let  $CD$  be commensurable (in length) with  $AB$ . I say that  $CD$  is also a (straight-line) which with a medial (area) makes a medial whole.

For let  $BE$  be an attachment to  $AB$ . And let the same construction have been made (as in the previous propositions). Thus,  $AE$  and  $EB$  are (straight-lines which are) incommensurable in square, making the sum of the squares on them medial, and the (rectangle contained) by them medial, and, further, the sum of the squares on them incommensurable with the (rectangle contained) by them [Prop. 10.78]. And, as was shown (previously),  $AE$  and  $EB$  are commensurable (in length) with  $CF$  and  $FD$  (respectively), and the sum of the squares on  $AE$  and  $EB$  with the sum of the squares on  $CF$  and  $FD$ , and the (rectangle contained) by  $AE$  and  $EB$  with the (rectangle contained) by  $CF$  and  $FD$ . Thus,  $CF$  and  $FD$  are also (straight-lines which are) incommensurable in square, making the sum of the squares on them medial, and the (rectangle contained) by them medial, and, further, the sum of the [squares] on them incom-

measurable with the (rectangle contained) by them.

Thus,  $CD$  is a (straight-line) which with a medial (area) makes a medial whole [Prop. 10.78]. (Which is) the very thing it was required to show.