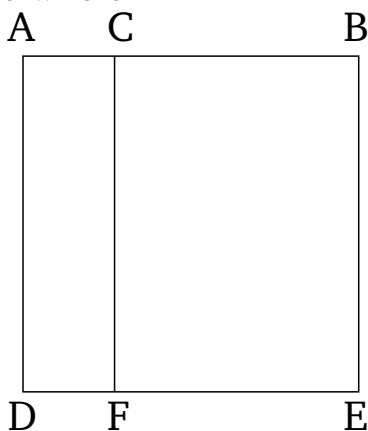


Book 2

Proposition 2

If a straight-line is cut at random then the (sum of the) rectangle(s) contained by the whole (straight-line), and each of the pieces (of the straight-line), is equal to the square on the whole.



For let the straight-line AB have been cut, at random, at point C . I say that the rectangle contained by AB and BC , plus the rectangle contained by BA and AC , is equal to the square on AB .

For let the square $ADEB$ have been described on AB [Prop. 1.46], and let CF have been drawn through C , parallel to either of AD or BE [Prop. 1.31].

So the (square) AE is equal to the (rectangles) AF and CE . And AE is the square on AB . And AF (is) the rectangle contained by the (straight-lines) BA and AC . For it is contained by DA and AC , and AD (is) equal to AB . And CE (is) the (rectangle contained) by AB and BC . For BE (is) equal to AB . Thus, the (rectangle contained) by BA and AC , plus the (rectangle

contained) by AB and BC , is equal to the square on AB .

Thus, if a straight-line is cut at random then the (sum of the) rectangle(s) contained by the whole (straight-line), and each of the pieces (of the straight-line), is equal to the square on the whole. (Which is) the very thing it was required to show.