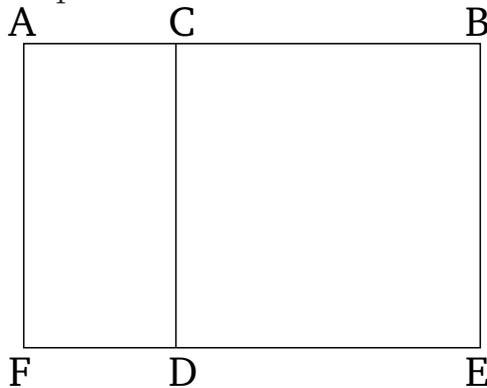


Book 2

Proposition 3

If a straight-line is cut at random then the rectangle contained by the whole (straight-line), and one of the pieces (of the straight-line), is equal to the rectangle contained by (both of) the pieces, and the square on the aforementioned piece.



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

For let the square $CDEB$ have been described on CB [Prop. 1.46], and let ED have been drawn through to F , and let AF have been drawn through A , parallel to either of CD or BE [Prop. 1.31]. So the (rectangle) AE is equal to the (rectangle) AD and the (square) CE . And AE is the rectangle contained by AB and BC . For it is contained by AB and BE , and BE (is) equal to BC . And AD (is) the (rectangle contained) by AC and CB . For DC (is) equal to CB . And DB (is) the square on CB . Thus, the rectangle contained by AB and BC

is equal to the rectangle contained by AC and CB , plus the square on BC .

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