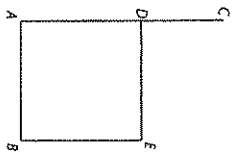


The Bones

A handy where-to-find-it
pocket reference companion
to Euclid's *Elements*



Green Lion Press
Santa Fe, New Mexico

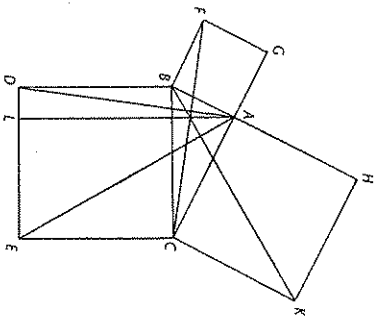


Proposition 46

On a given straight line to describe a square.

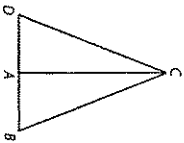
Proposition 47

In right-angled triangles the square on the side subtending the right angle is equal to the squares on the sides containing the right angle.



Proposition 48

If in a triangle the square on one of the sides be equal to the squares on the remaining two sides of the triangle, the angle contained by the remaining two sides of the triangle is right.



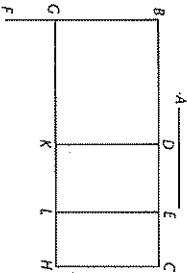
Book II

Definitions

1. Any rectangular parallelogram is said to be contained by the two straight lines containing the right angle.
2. And in any parallelogrammic area let any one whatever of the parallelograms about its diameter with the two complements be called a *gnomon*.

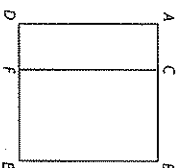
Proposition 1

If there be two straight lines, and one of them be cut into any number of segments whatever, the rectangle contained by the two straight lines is equal to the rectangles contained by the uncut straight line and each of the segments.



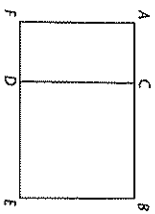
Proposition 2

If a straight line be cut at random, the rectangles contained by the whole and both of the segments are equal to the square on the whole.



Proposition 3

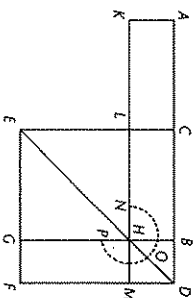
If a straight line be cut at random, the rectangle contained by the whole and one of the segments is equal to the rectangle contained by the segments and the square on the aforesaid segment.



whole together with the square on the straight line between the points of section is equal to the square on the half.

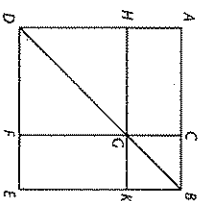
Proposition 6

If a straight line be bisected and a straight line be added to it in a straight line, the rectangle contained by the whole with the added straight line and the added straight line together with the square on the half is equal to the square on the straight line made up of the half and the added straight line.



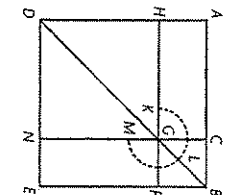
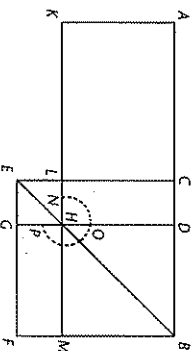
Proposition 4

If a straight line be cut at random, the square on the whole is equal to the squares on the segments and twice the rectangle contained by the segments.



Proposition 5

If a straight line be cut into equal and unequal segments, the rectangle contained by the unequal segments of the

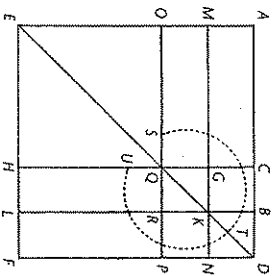


Proposition 7

If a straight line be cut at random, the square on the whole and that on one of the segments both together are equal to twice the rectangle contained by the whole and the said segment and the square on the remaining segment.

Proposition 8

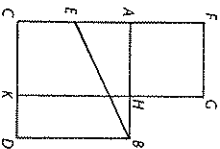
If a straight line be cut at random, four times the rectangle contained by the whole and one of the segments together with the square on the remaining segment is equal to the square described on the whole and the aforesaid segment as on one straight line.



square on the whole with the added straight line and the square on the added straight line both together are double of the square on the half and of the square described on the straight line made up of the half and the added straight line as on one straight line.

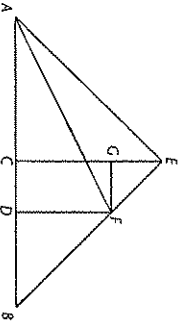
Proposition 11

To cut a given straight line so that the rectangle contained by the whole and one of the segments is equal to the square on the remaining segment.



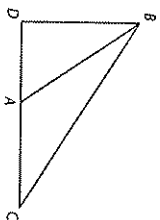
Proposition 9

If a straight line be cut into equal and unequal segments, the squares on the unequal segments of the whole are double of the square on the half and of the square on the straight line between the points of section.



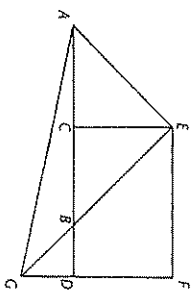
Proposition 12

In obtuse-angled triangles the square on the side subtending the obtuse angle is greater than the squares on the sides containing the obtuse angle by twice the rectangle contained by one of the sides about the obtuse angle, namely that on which the perpendicular falls, and the straight line cut off outside by the perpendicular towards the obtuse angle.



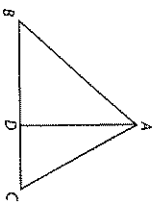
If a straight line be bisected, and a straight line be added to it in a straight line, the

Proposition 10



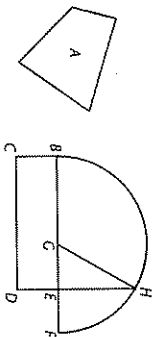
Proposition 13

In acute-angled triangles the square on the side subtending the acute angle is less than the squares on the sides containing the acute angle by twice the rectangle contained by one of the sides about the acute angle, namely that on which the perpendicular falls, and the straight line cut off within by the perpendicular towards the acute angle.



Proposition 14

To construct a square equal to a given rectilineal figure.



Book III

Definitions

1. Equal circles are those the diameters of which are equal, or the radii of which are equal.
2. A straight line is said to *touch a circle* which, meeting the circle and being produced, does not cut the circle.
3. Circles are said to *touch one another* which, meeting one another, do not cut one another.
4. In a circle straight lines are said to be *equally distant from the centre* when the perpendiculars drawn to them from the centre are equal.
5. And that straight line is said to be *at a greater distance* on which the greater perpendicular falls.
6. A *segment of a circle* is the figure contained by a straight line and a circumference of a circle.
7. An *angle of a segment* is that contained by a straight line and a circumference of a circle.
8. An *angle in a segment* is the angle which, when a point is taken on the circumference of the segment and straight lines are joined from it to the extremities of the straight line which is the *base of the segment*, is contained by the straight lines so joined.
9. And, when the straight lines containing the angle cut off a circumference, the angle is said to *stand upon* that circumference.