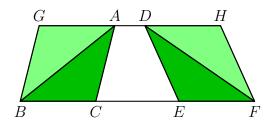
Study Note—Euclid's *Elements*, Book I, Proposition 38

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This proposition concerns two triangles, ABC and DEF, that are on equal bases BC and EF and in the same parallels. These triangles are situated so as to ensure that the points B, C, E and F are collinear. Accordingly the straight line passing through the points A and D is required to be parallel to the straight line passing through the points B, C, E and F.



Let the parallelogram GBCA be constructed so that the line AB bisects the parallelogram, and let the parallelogram DEFH be constructed so that the line DF bisects the parallelogram.

Proposition 36 of Book I of the *Elements* ensures that the parallelograms GBCA and DEFH are equal in area. Proposition 34 ensures that the parallelogram GBCA is in area double the triangle ABC, and also ensures that the parallelogram DEFH is in area double the triangle DEF. It follows that the triangles ABC and DEF must be equal in area, as required.