9. Wherefore the angle BAC must coincide with the angle EDF, and is equal to it. (*Axiom* 8.)

CONCLUSION.—Therefore, if two triangles, &c. (*See Enunciation.*) *Which was to be shewn.*

PROPOSITION 9.—PROBLEM.

To bisect a given rectilineal angle, that is, to divide it into two equal parts.

GIVEN.—Let BAC be the given rectilineal angle.

SOUGHT.—It is required to bisect it.

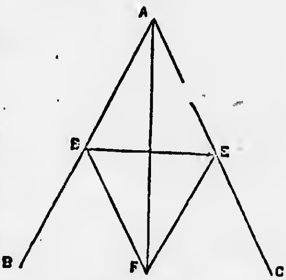
CONSTRUCTION.—1. Take any point D in AB.

2. From AC (*the greater*), cut off a part AE, equal to AD (*the less*). (*Prop.* 3, *Book* I.)

3. Join DE.

4. Upon DE, describe an equilateral triangle DEF (*on the opposite side of the base, to that on which the triangle DAE is formed.*)

5. Join AF; the straight line AF shall bisect the angle BAC.



PROOF.—1. Because AD is equal to AE (*Construction* 2), and AF is common to the two triangles DAF, EAF.

2. The two sides DA, AF, are equal to the two sides EA, AF, each to each.

3. And the base DF is equal to the base EF. (*Construction* 4.)

4. Therefore, the angle DAF is equal to the angle EAF. (*Proposition* 8, *Book* I.)

CONCLUSION.—Wherefore the given rectilineal angle BAC is bisected by the straight line AF. *Which was to be done.*

PROPOSITION 10.—PROBLEM.

To bisect a given finite straight line, that is, to divide it into two equal parts.

GIVEN.—Let AB be the given straight line.

SOUGHT.—It is required to divide it into two equal parts.

CONSTRUCTION.—1. On AB construct the equilateral triangle ABC. (*Prop.* 1, *Book* I.)