angle, BDC, the exterior angle of the triangle CDE is greater than CED.

2. For the same reason, CEB (*or CED,*) the exterior angle of the triangle ABE, is greater than BAC (*or BAE*).

3. And it has been demonstrated that the angle BDC is greater than the angle CEB.

4. Much more, then, is the angle BDC greater than the angle BAC.

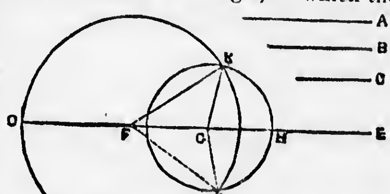
CONCLUSION.—Therefore, if from the ends, &c. (*See Enunciation.*) *Which was to be shewn.*

PROPOSITION 22.—PROBLEM.

To make a triangle, of which the sides shall be equal to three given straight lines, but any two whatever of these must be greater than the third.

GIVEN.—Let A, B, C, be the three given straight lines, of which any two whatever are greater than the third, viz.:—A and B greater than C, A and C greater than B, and B and C greater than A.

SOUGHT.—It is required to make a triangle, of which the sides shall be equal to A, B, and C, each to each.



CONSTRUCTION.—1. Take a straight line, DE, terminated at the point D, but unlimited towards E.

2. Make DF equal to A, FG equal to B, and GH equal to C. (*Prop.* 3, *Book* I.)

3. From the centre G, at the distance GH, describe the circle HLK. (*Postulate* 3.)

4. From the centre F, at the distance FD, describe the circle DKL. (*Postulate* 3.)

5. Join KF, KG, (*or LF, LG.*)

The triangle KFG (*or the triangle LFG*), shall have its sides equal to the three straight lines A, B, C.

PROOF.—1. Because the point F, is the centre of the circle DKL, FD is equal to FK. (*Definition* 15.)

2. But FD is equal to the straight line A. (*Construction* 2.)

3. Therefore FK is equal to the straight line A. (*Axiom* 1.)