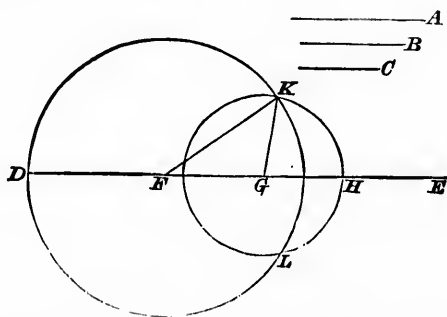


Ex. 2. Shew that the sum of the straight lines, joining the angles of a triangle with a point within the triangle, is less than the perimeter of the triangle, and greater than half the perimeter.

PROPOSITION XXII. PROBLEM.

To make a triangle, of which the sides shall be equal to three given straight lines, any two of which are together greater than the third.



Let A, B, C be the three given lines, any two of which are together greater than the third.

It is required to make a $\triangle$ having its sides $= A, B, C$ respectively.

Take a st. line DE of unlimited length.

In DE make $DF = A, FG = B$, and $GH = C$.

I. 3.

With centre F and distance FD , describe $\odot DKL$.

With centre G and distance GH , describe $\odot HKL$.

Join FK and GK .

Then $\triangle KFG$ has its sides $= A, B, C$ respectively.

For $FK = FD$;

Def. 13.

$\therefore FK = A$;

and $GK = GH$;

Def. 13.

$\therefore GK = C$;

and $FG = B$;

$\therefore$ a $\triangle KFG$ has been described as reqd. Q. E. F.

Ex. Draw an isosceles triangle having each of the equal sides double of the base,