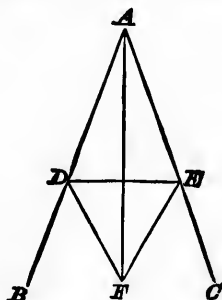


PROPOSITION IX. PROBLEM.

To bisect a given angle.



Let BAC be the given angle.

It is required to bisect $\angle BAC$.

In AB take any pt. D .

In AC make $AE=AD$, and join DE .

On DE , on the side remote from A , describe an equilat. $\triangle DFE$.

I. 1.

Join AF . Then AF will bisect $\angle BAC$.

For in $\triangle s AFD, AFE$,

$\because AD=AE$, and AF is common, and $FD=FE$,

$\therefore \angle DAF = \angle EAF$,

I. c.

that is, $\angle BAC$ is bisected by AF .

Q. E. F.

EX. 1. Shew that we can prove this Proposition by means of Prop. iv. and PROP. A., without applying Prop. C.

EX. 2. If the equilateral triangle, employed in the construction, be described with its vertex towards the given angle; shew that there is one case in which the construction will fail, and two in which it will hold good.

NOTE.—The line dividing an angle into two equal parts is called the **BISECTOR** of the angle.