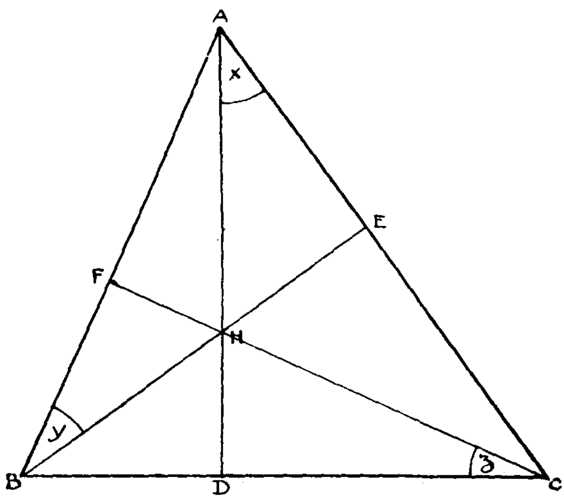
Of course the complete discussion of the restrictions under which this postulate could be proved would open up the whole thorny question of the nature of a curve in general; but I think there would be no great harm in admitting that, unless the curve has the property Lim. $\frac{\text{Arc } Pq}{\text{Arc } PQ} = 1$, the proposition must be regarded as unproved.

It might not be difficult to show that this postulate must hold good in every case where the arc has a definite centre of curvature.

R. F. MUIRHEAD.

Geometrical proof that $\tan x \tan y + \tan y \tan z + \tan z \tan x = 1$ when $x + y + z = 90°$.

H being the orthocentre of a triangle ABC, we may call the angles HAC, HBA, $HCB = x$, y, z respectively, for their sum is 90°.



Now $\tan x \tan z = \frac{DC}{DA} \cdot \frac{HD}{DC} = \frac{HD}{DA} = \frac{\triangle BHC}{\triangle ABC}$,

$$\therefore \quad \tan x \tan z + \tan z \tan y + \tan x \tan y = 1.$$

https://doi.org/10.1017/S175774890000164X Published online by Cambridge University Press

Further, since $\tan z = \cot DHC = \cot B$, etc.,

$$\cot B \cot C + \cot C \cot A + \cot A \cot B = 1,$$

i.e. $$\tan A + \tan B + \tan C = \tan A \tan B \tan C$$

where $A + B + C = 180°$.

This result can be proved direct without mentioning x, y, z, by the same steps as before.

G. E. CRAWFORD.

https://doi.org/10.1017/S175774890000164X Published online by Cambridge University Press