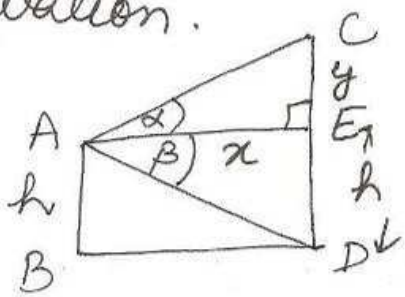
(17) let A be pt. of observation.
CD the other house.




to prove

$CD = h(1 + \tan\alpha \cot\beta)$ m

proof In rt $\triangle$ AEC

$$\tan\alpha = \frac{CE}{AE}$$

$$= \frac{y}{x} \Rightarrow x = \frac{y}{\tan\alpha} \quad \cdots (1)$$

In rt $\triangle$ AED

$$\cot\beta = \frac{AE}{DE}$$

$$= \frac{x}{h} \Rightarrow x = h\cot\beta \cdots (11)$$

From (1) and (11)

$$\frac{y}{\tan\alpha} = h\cot\beta$$

$$\Rightarrow y = h\cot\beta\tan\alpha$$

add. h on both sides

$$y + h = h + h\cot\beta\tan\alpha$$

$$CD = h(1 + \tan\alpha\cot\beta) \text{ metres}$$