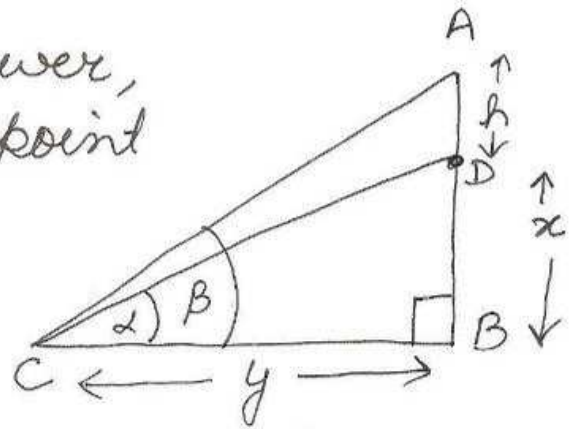


- ⑧ let DB represents tower,
AD flag staff, c is point
of observation



In rt ΔCBD

$$\tan \alpha = \frac{x}{y} \Rightarrow y = \frac{x}{\tan \alpha} \dots \textcircled{I}$$

In rt ΔCBA

$$\tan \beta = \frac{h+x}{y} \Rightarrow y = \frac{h+x}{\tan \beta} \dots \textcircled{II}$$

From \textcircled{I} and \textcircled{II}

$$\frac{x}{\tan \alpha} = \frac{h+x}{\tan \beta}$$

$$\Rightarrow x \tan \beta = h \tan \alpha + x \tan \alpha$$

$$\Rightarrow h \tan \alpha = x (\tan \beta - \tan \alpha)$$

$$\Rightarrow \cancel{h} \Rightarrow x = \frac{h \tan \alpha}{\tan \beta - \tan \alpha} \text{ units}$$