

~~Question~~ Assignment set # 1.

[solution]

In the diagram,

BD and CE represent the two metersticks,

A represents the distant object.

Given:  $DB = CE = 1 \text{ m}$ .  $\angle ABC = \angle ACB$ .

$BC = 1 \text{ m}$ .

$DE = 0.96 \text{ m}$ .

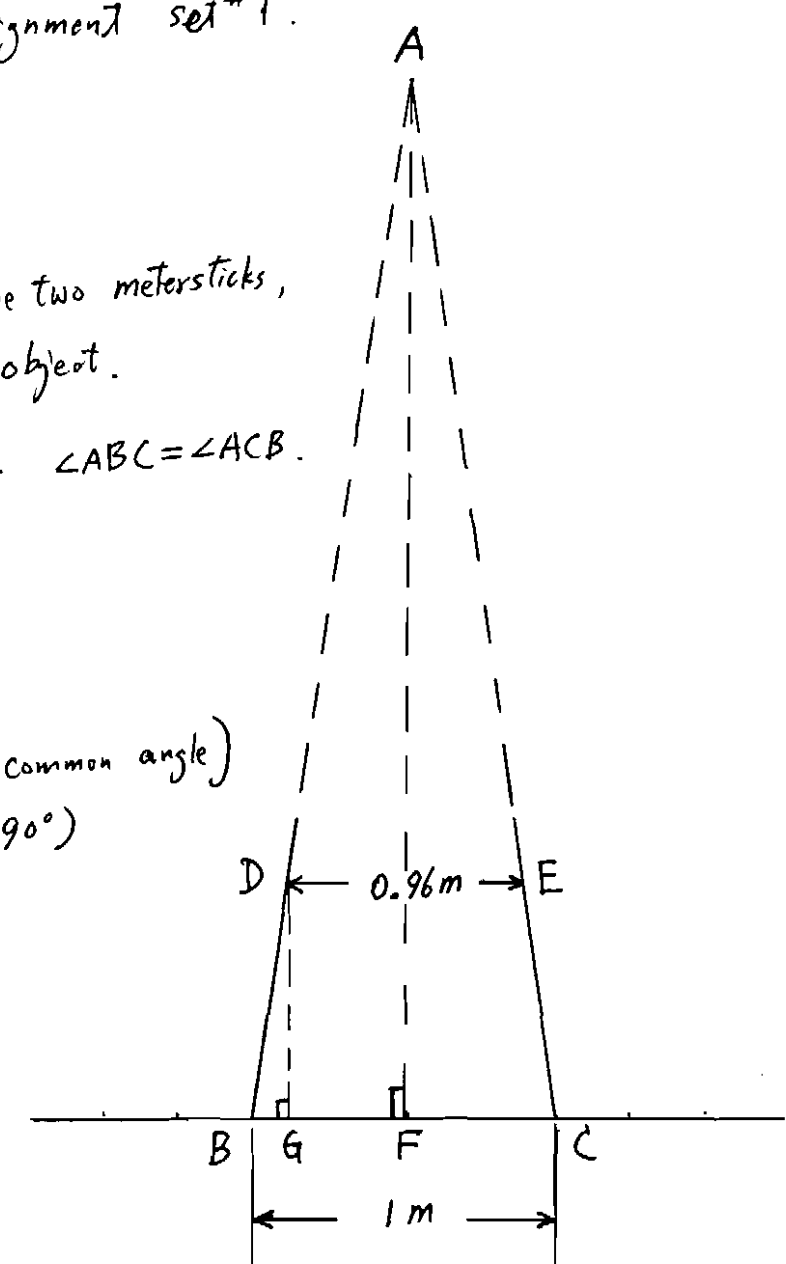
Want:  $AF = ?$

Since:  $\begin{cases} \angle ABF = \angle DBG & (\text{common angle}) \\ \angle AFB = \angle DGB & (90^\circ) \end{cases}$

$\triangle ABF \sim \triangle DBG$ .

Then:  $\frac{AB}{BD} = \frac{BF}{BG}$

$$\begin{aligned} AB &= \frac{BF \cdot BD}{BG} \\ &= \frac{0.5 \text{ m} \times 1 \text{ m}}{0.02 \text{ m}} \\ &= 25 \text{ m} . \end{aligned}$$



(Note:  $BF = \frac{1}{2} BC = 0.5 \text{ m}$   
 $BG = 0.5 \text{ m} - 0.48 \text{ m} = 0.02 \text{ m}$ )

$$AF = \sqrt{(AB)^2 - (BF)^2} = \sqrt{(25 \text{ m})^2 - (0.5 \text{ m})^2} = 24.995 \text{ m} .$$

$\therefore$   $AF \approx 25 \text{ m} .$