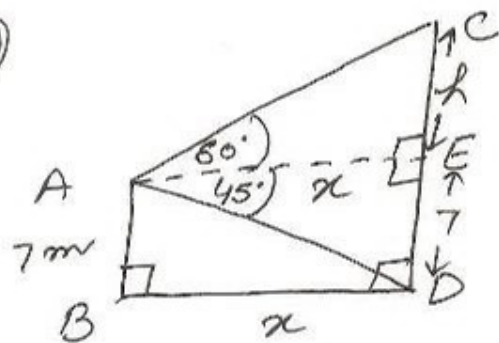


(12)



let AB represents building, CD the cable tower.

In rt  $\triangle AED$

$$\tan 45^\circ = \frac{ED}{AE}$$

$$1 = \frac{7}{x}$$

$$\Rightarrow x = 7$$

In rt  $\triangle AEC$

$$\tan 60^\circ = \frac{CE}{AE}$$

$$\sqrt{3} = \frac{h}{x}$$

$$\Rightarrow h = 7\sqrt{3}$$

$$\text{height of tower} = 7\sqrt{3} + 7$$

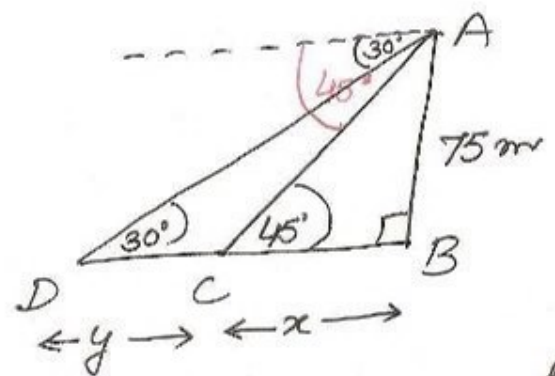
$$= 7(\sqrt{3} + 1) \text{ m}$$

$$= 7(1.73 + 1)$$

$$= 7 \times 2.73$$

$$= 19.11 \text{ m}$$

(13)



let AB represents lighthouse  
C, D position of ship

In rt  $\triangle CBA$

$$\tan 45^\circ = \frac{AB}{BC}$$

$$1 = \frac{AB}{BC}$$

$$\Rightarrow BC = AB$$

$$\Rightarrow x = 75 \dots \textcircled{1}$$

In rt  $\triangle DBA$

$$\tan 30^\circ = \frac{AB}{DB}$$

$$\frac{1}{\sqrt{3}} = \frac{75}{x+y}$$

$$\Rightarrow x+y = 75\sqrt{3}$$

using  $\textcircled{1}$

$$\Rightarrow y = 75\sqrt{3} - 75$$

$$= 75(\sqrt{3} - 1)$$

$$= 75(1.73 - 1)$$

$$= 75 \times 0.73$$

$$= 54.75$$

$\therefore$  diff. between ships

$$= 54.75 \text{ m}$$