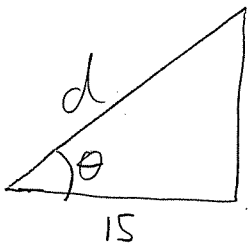
1)

$30^\circ \rightarrow 30^\circ$

$40' \rightarrow \frac{40}{60}^\circ = 0.66^\circ$

$20'' \rightarrow \frac{20}{60\times 60}^\circ = 0.0056$

$30^\circ 40' 20'' = 30.6722$ (1)



$\cos(\theta) = \frac{15}{d}$ (1)

$\Rightarrow d = \frac{15}{\cos(30.6722)} = 17.44$ (1)

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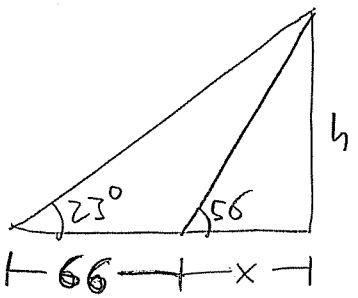
2)



$\tan(23) = \frac{h}{66+x}$ (1) $\Rightarrow x = \frac{h}{\tan(23)} - 66$ (1)

$\tan(56) = \frac{h}{x}$ (1) $\Rightarrow x = \frac{h}{\tan(56)}$ (1)

So

$\frac{h}{\tan(23)} - 66 = \frac{h}{\tan(56)} \Rightarrow h\left(\frac{1}{\tan(23)} - \frac{1}{\tan(56)}\right) = 66$

$\Rightarrow \frac{1}{h} = \frac{1}{66}\left(\frac{1}{\tan(23)} - \frac{1}{\tan(56)}\right) \Rightarrow h = 39.25$

(3) for sol

3)

$$\tan(47^\circ) = \frac{5.6}{h} \quad (1) \quad \Rightarrow \quad h = \frac{5.6}{\tan(47)} \quad (1) \quad = 5.22$$

$$\tan(32^\circ) = \frac{x}{h} \quad (1) \quad = \frac{x}{5.22} \quad (1) \quad \Rightarrow \quad x = 5.22 \times \tan(32)$$

$$= 3.26$$

or

$$= \frac{x}{\left(\frac{5.6}{\tan(47)}\right)}$$

$$\Rightarrow \quad x = \frac{5.6\tan(32)}{\tan(47)}$$