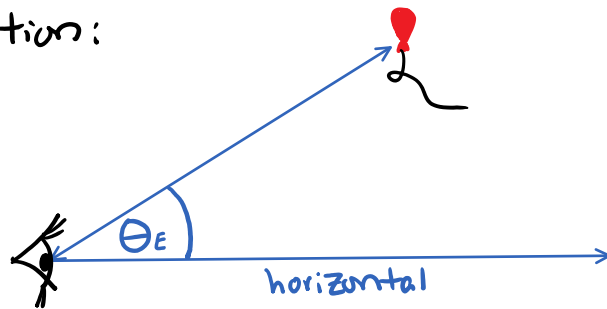


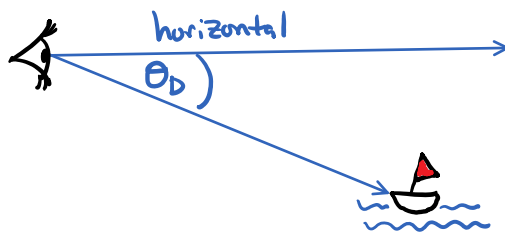
2.7 - Problems Involving 2+ Triangles

November 5, 2019 10:44 AM

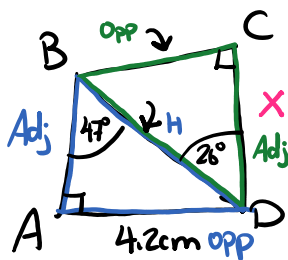
Angle of Elevation:



Angle of Depression:



Ex: Find CD to the nearest tenth:



\Rightarrow Can't find in one step $\ddot{\smile}$

Finding BD will be useful....

We have opp (SOH) CAH TOA
we want hyp.

$$\Rightarrow \sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin(47^\circ) = \frac{4.2\text{cm}}{BD}$$

$$BD = \frac{4.2\text{cm} \times 1}{\sin 47^\circ}$$

$$BD \approx 5.7427... \text{ cm}$$

we have hyp. SOH (CAH) TOA
we want adj.

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

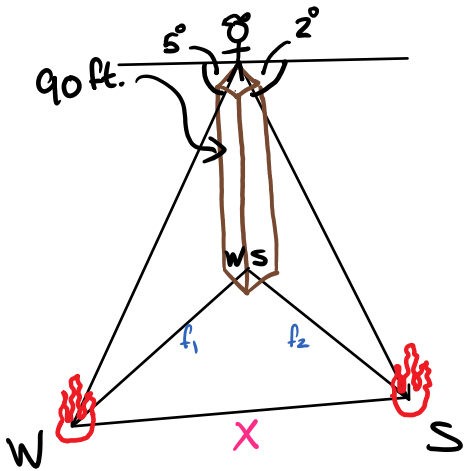
$$5.7427... \times \cos(26^\circ) = \frac{CD}{(5.7427...)} \times 5.7427...$$

$$CD = \cos 26^\circ \cdot 5.7427... \text{ cm}$$

$$CD \approx 5.1615... \text{ cm}$$

$$CD = 5.2 \text{ cm}$$

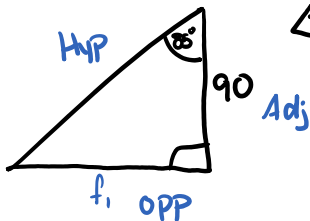
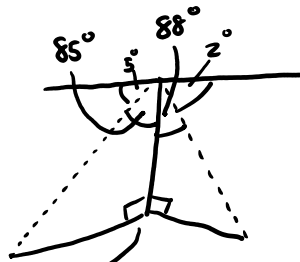
Ex: A fire ranger atop a 90 ft. tower sees a fire due west at an angle of depression of 5° . He sees another fire due south at an angle of depression of 2° . How far are the fires away from each other?



The angles of depression are 2° and 5° , so the angles between the tower are:

$$90^\circ - 2^\circ = 88^\circ$$

$$90^\circ - 5^\circ = 85^\circ$$

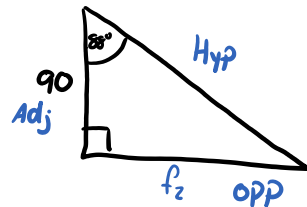


$$\tan \theta = \frac{\text{Opp}}{\text{Adj}}$$

$$90 \times \tan(85^\circ) = \frac{f_1}{90}$$

$$f_1 = 90 \cdot \tan 85^\circ$$

$$f_1 \approx 1028.7047 \text{ ft.}$$



$$\tan \theta = \frac{\text{Opp}}{\text{Adj}}$$

$$90 \times \tan(88^\circ) = \frac{f_2}{90}$$

$$f_2 = 90 \cdot \tan 88^\circ$$

$$f_2 \approx 2577.2627 \text{ ft.}$$

$$\Rightarrow a^2 + b^2 = c^2$$

$$f_1^2 + f_2^2 = X^2$$

$$(1028.7047 \text{ ft.})^2 + (2577.2627 \text{ ft.})^2 = X^2$$

$$X = \sqrt{(1028.7047 \text{ ft.})^2 + (2577.2627 \text{ ft.})^2}$$

$$X \approx 2774.9805 \text{ ft.}$$

$$X = 2775 \text{ ft.}$$

HW: Pg. 118 # 3-6, 9, 11, 19*