

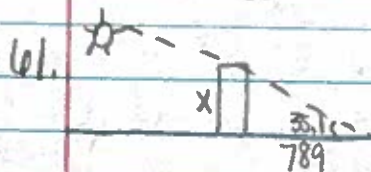
Homework: Angles of Elevation and Depression

p. 517-519 Problems 55, 61, 62, ~~64~~, 66, 67, 69, 71, 75



$$\tan \theta = \frac{300}{50} \rightarrow \theta = \tan^{-1}\left(\frac{300}{50}\right)$$

$$\theta = 80.538^\circ$$



$$\tan 35.1 = \frac{x}{789}$$

$$789 \tan 35.1 = x$$

$$x = 554.518 \text{ ft}$$

* Calculator should be in degree mode

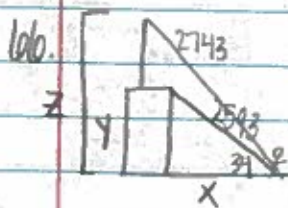


$$\sin 17 = \frac{2200}{x}$$

$$x \sin 17 = 2200$$

$$x = \frac{2200}{\sin 17} \rightarrow x = 7524.1608 \text{ ft}$$

64. omit



a) $\cos 34 = \frac{x}{2743}$

$$2743 \cos 34 = x$$

$$2149.694 \text{ ft} = x$$

b) $\sin 34 = \frac{y}{2743}$

$$2743 \sin 34 = y$$

$$1449.987 \text{ ft} = y$$

c) $\cos \theta = \frac{x}{2743} \rightarrow \cos \theta = \frac{2149.694}{2743}$

$$\cos^{-1}\left(\frac{2149.694}{2743}\right) = \theta$$

$$38.399^\circ = \theta$$

d) $\sin(38.399) = \frac{z}{2743}$

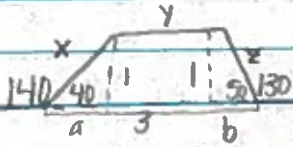
$$2743 \sin(38.399) = z$$

$$1703.771 = z$$

$$1703.771 - 1449.987$$

$$z = 253.784 \text{ ft}$$

67.



$$\sin 40 = \frac{1}{x}$$

$$x \sin 40 = 1$$

$$x = \frac{1}{\sin 40}$$

$$x = 1.5516$$

$$\sin 50 = \frac{1}{z}$$

$$z \sin 50 = 1$$

$$z = \frac{1}{\sin 50}$$

$$z = 1.305$$

$$\tan 40 = \frac{1}{a}$$

$$a \tan 40 = 1$$

$$a = \frac{1}{\tan 40}$$

$$a = 1.192$$

$$\tan 50 = \frac{1}{b}$$

$$b \tan 50 = 1$$

$$b = \frac{1}{\tan 50}$$

$$b = .839$$

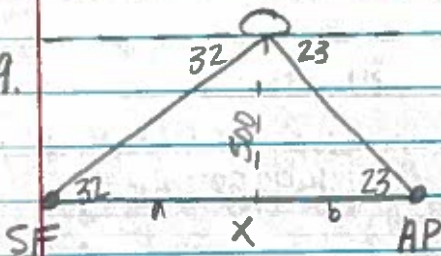
$$y = 3 - 1.192 - .839$$

$$y = .969$$

$$\text{total distance} = x + y + z$$

$$1.5516 + .969 + 1.305 = \boxed{3.83 \text{ miles}}$$

69.



$$\tan 32 = \frac{500}{a}$$

$$a \tan 32 = 500$$

$$a = \frac{500}{\tan 32}$$

$$a = 800.167$$

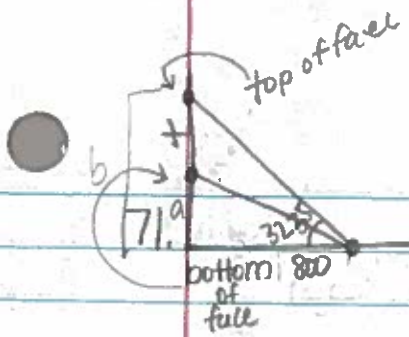
$$\tan 23 = \frac{500}{b}$$

$$b \tan 23 = 500$$

$$b = \frac{500}{\tan 23}$$

$$b = 1177.926$$

$$X = a + b = \boxed{1978.093 \text{ ft}}$$



$$\tan 32 = \frac{a}{800}$$

$$800 \tan 32 = a$$

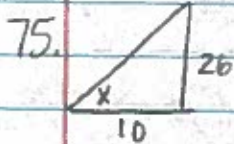
$$499.895 = a$$

$$\tan 35 = \frac{b}{800}$$

$$800 \tan 35 = b$$

$$560.166 = b$$

$$X = b - a = 60.271 \text{ ft}$$



$$\tan x = \frac{26}{10}$$

$$x = \tan^{-1}\left(\frac{26}{10}\right)$$

$$X = 68.962 \text{ ft}$$

