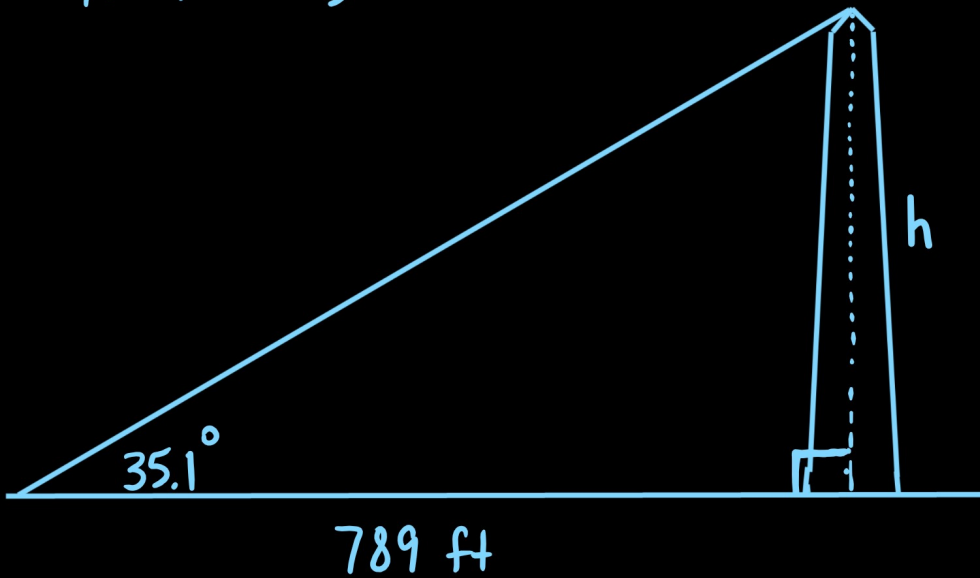


WARMUP

The angle of elevation to the top of the Washington Monument is 35.1° the instant it casts a shadow 789 feet long. What is the height of the monument?

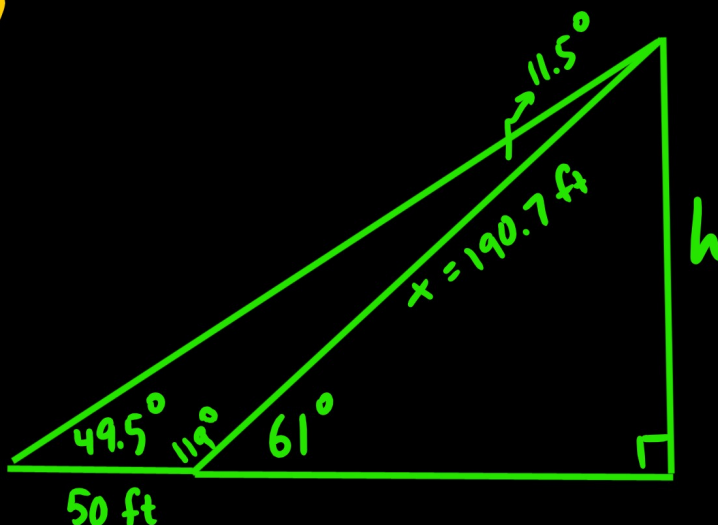


$$\tan 35.1^\circ = \frac{h}{789}$$

$$789 \cdot \tan 35.1^\circ = h$$

$$h = 554.5 \text{ ft}$$

ex: You are hiking along a river and see a tall tree on the opposite bank. You measure the angle of elevation of the top of the tree and find it to be 61.0° . You then walk 50 feet directly away from the tree and measure a 49.5° angle of elevation. How tall is the tree?



$$\frac{\sin 11.5^\circ}{50} = \frac{\sin 49.5^\circ}{x}$$

$$\frac{x \sin 11.5^\circ}{\sin 11.5^\circ} = \frac{50 \sin 49.5^\circ}{\sin 11.5^\circ}$$

$$x = 190.7 \text{ ft}$$

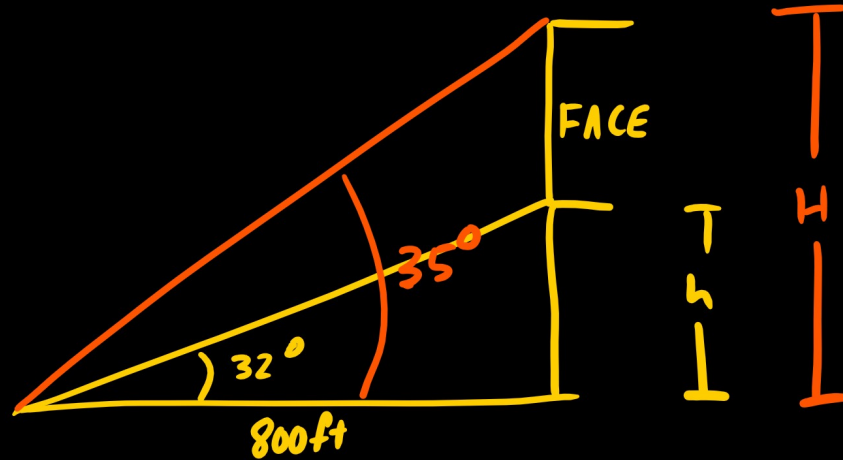
$$\frac{\sin 90}{190.7} = \frac{\sin 61}{h}$$

$$\sin 61^\circ = \frac{h}{190.7}$$

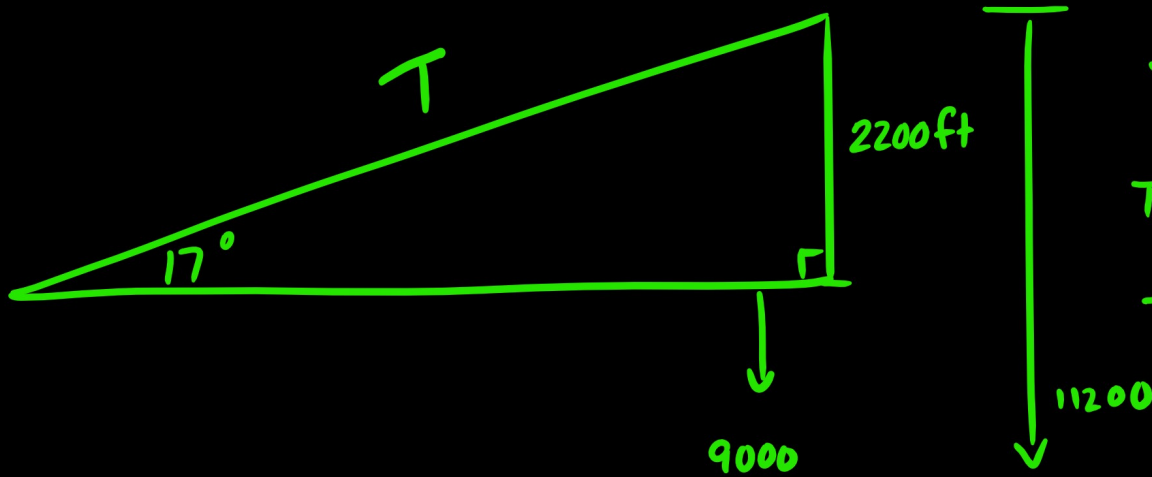
$$h = 190.7 \sin 61^\circ$$

$$h = 166.8 \text{ ft}$$

51,537



56)

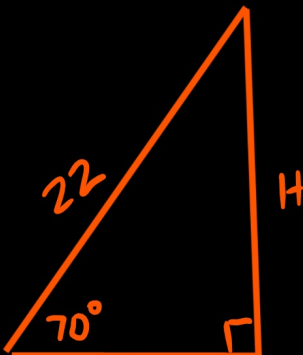


$$\frac{\sin 17^\circ}{1} = \frac{2200}{T}$$

$$T = \frac{2200}{\sin 17^\circ}$$

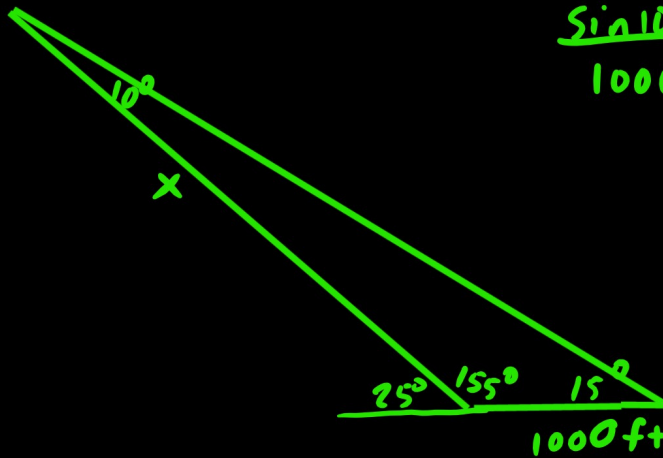
$$T = 7525 \text{ ft}$$

47)



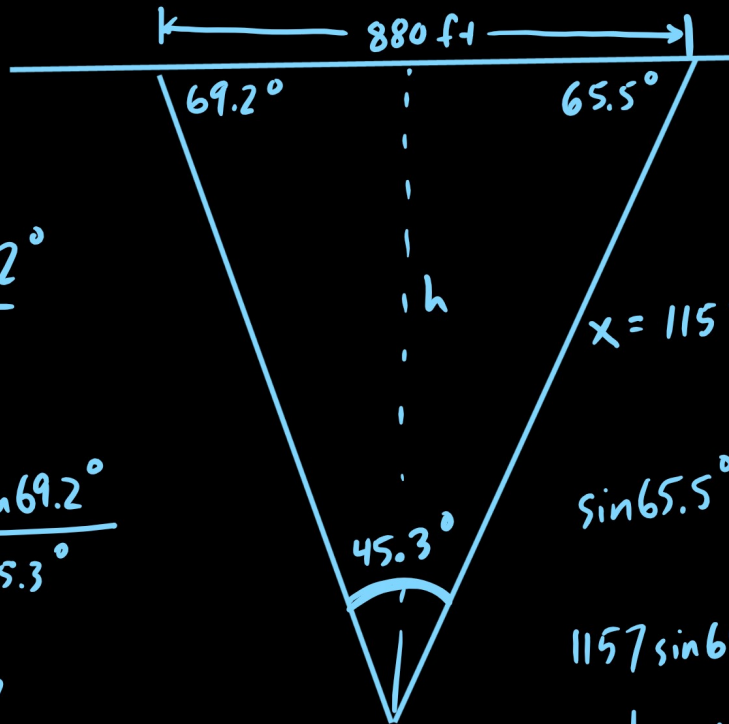
$$\sin 70^\circ = \frac{H}{22}$$

31 p 548



$$\frac{\sin 10^\circ}{1000} = \frac{\sin 15^\circ}{x}$$

34) p 548



$$\frac{\sin 45.3^\circ}{880} = \frac{\sin 69.2^\circ}{x}$$

$$\frac{x \sin 45.3^\circ}{\sin 45.3^\circ} = \frac{880 \sin 69.2^\circ}{\sin 45.3^\circ}$$

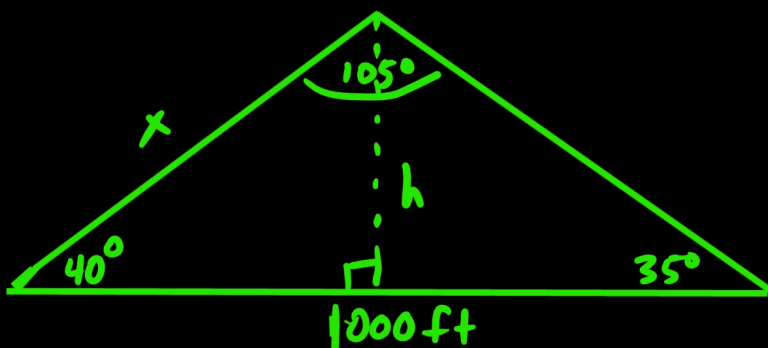
$$x = 1157$$

$$\sin 65.5^\circ = \frac{h}{1157}$$

$$1157 \sin 65.5^\circ = h$$

$$h = 1053'$$

33)



$$\frac{\sin 105^\circ}{1000} = \frac{\sin 35^\circ}{x}$$

$$\frac{\sin 90^\circ}{x} = \frac{\sin 40^\circ}{h}$$

$$\sin 40^\circ = \frac{h}{x}$$