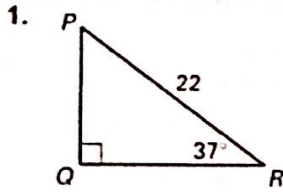
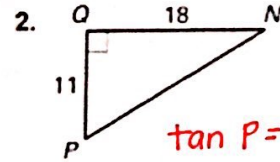


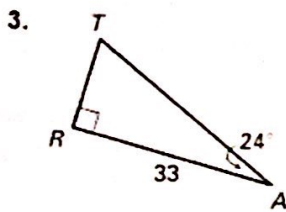
Solve the right triangle. Round decimal answers to the nearest tenth.



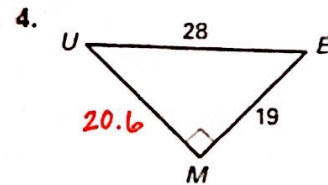
$m\angle P = 53^\circ$   
 $\sin 37^\circ = \frac{PQ}{22}$   
 $PQ = 13.2$   
 $QR = 17.6$



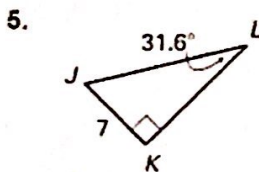
$\tan P = \frac{18}{11}$   
 $P = 58.6^\circ$   
 $N = 31.4^\circ$   
 $NP = 21.1$



$m\angle T = 66^\circ$   
 $\cos 24^\circ = \frac{33}{TA}$   
 $TA = 36.1$   
 $\tan 24^\circ = \frac{TR}{33}$   
 $TR = 14.7$

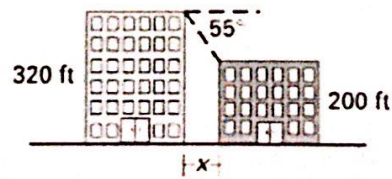


$m\angle E = ?$   
 $\cos E = \frac{19}{28}$   
 $E = \cos^{-1}(\frac{19}{28})$   
 $E = 47.3^\circ$   
 $U = 42.7^\circ$



$m\angle J = 58.4^\circ$   
 $\sin 31.6^\circ = \frac{7}{JL}$   
 $JL = 13.4$   
 $\tan 31.6^\circ = \frac{7}{KL}$   
 $KL = 11.4$

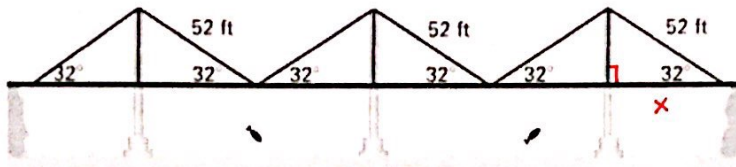
6. **Office Buildings** The angle of depression from the top of a 320 foot office building to the top of a 200 foot office building is  $55^\circ$ . How far apart are the buildings?



$\tan 55^\circ = \frac{120}{x}$

$x = 84 \text{ ft}$

7. **Suspension Bridge** Use the diagram to find the distance across the suspension bridge.

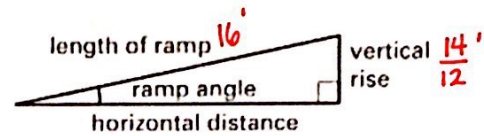


$$\cos 32^\circ = \frac{x}{52}$$

$$x = 44.1$$

$$\boxed{264.6 \text{ ft}}$$

**Ramps** The Uniform Federal Accessibility Standards specify that the ramp angle used for a wheelchair ramp must be less than or equal to  $4.78^\circ$ .

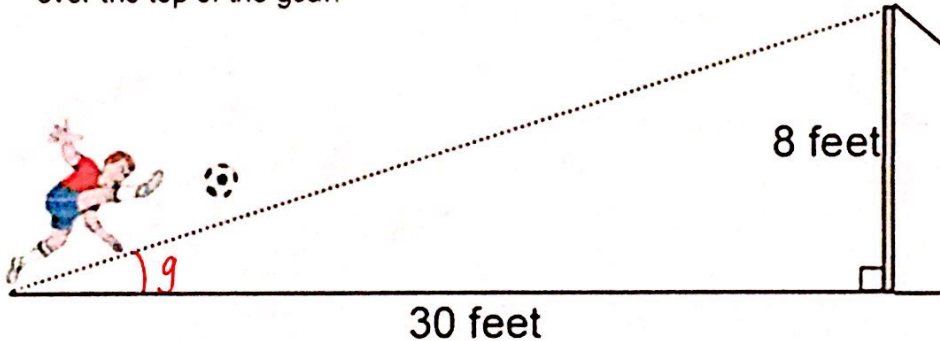


8. The length of one ramp is 16 feet. The vertical rise is 14 inches. Estimate the ramp's horizontal distance and its ramp angle. Does this ramp meet the Uniform Federal Accessibility Standards?

$$HD = 15.96'$$

$$\sin R = \frac{14/12}{16} \quad R = 4.18^\circ \quad \text{Yes-it meets the standards}$$

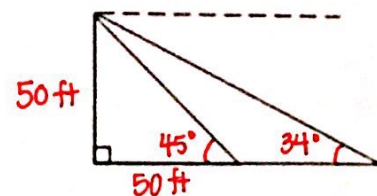
9. A soccer player is kicking a soccer ball toward the goal from a point 30 feet away. What is the largest angle he can hit the ball at and not go over the top of the goal?



$$\tan g = \frac{8}{30}$$

$$g = \tan^{-1}\left(\frac{8}{30}\right) = 14.9^\circ$$

10. You are looking down on 2 people from the top of a building that is 50 ft. tall. The angle of depression to the closer person is  $45^\circ$  and the angle of depression to the father person is  $34^\circ$ . How far apart are the two people on the ground?



$$\tan 34^\circ = \frac{50}{w}$$

$$w = 74.1 \text{ ft}$$

Friends are 24.1 ft apart.