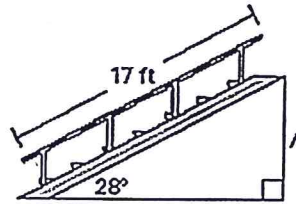
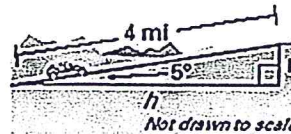


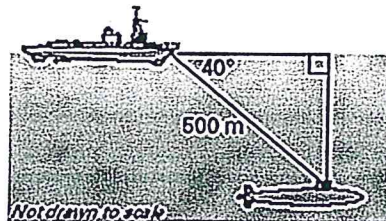
9. **Staircase** A staircase has an angle of elevation of 28° and covers a total distance of 17 feet. To the nearest foot, what is the vertical height h covered by the staircase?



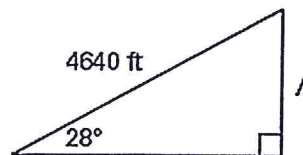
10. **Highway** You are traveling along a stretch of highway that has a slight grade with an angle of inclination of 5° . After traveling for 4 miles, what is the vertical v and horizontal h change in feet? (1 mi = 5280 ft) Round your answer to the nearest foot.



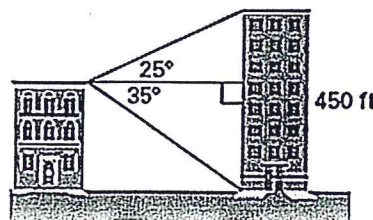
11. **Submarine** A sonar operator on a ship detects a submarine at a distance of 500 meters and an angle of depression of 40° . How deep is the submarine?



12. **Ski Lift** A chair lift on a ski slope has an angle of elevation of 28° and covers a total distance of 4640 feet. To the nearest foot, what is the vertical height h covered by the chair lift?

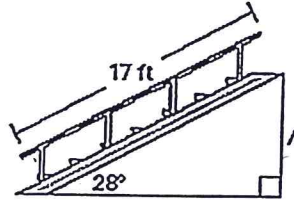


13. **Height of a Building** A 450 foot tall building is near a shorter building. A person on top of the shorter building finds the angle of elevation of the roof of the taller building to be 25° and the angle of depression of its base to be 35° . How far apart are the two buildings to the nearest foot? How tall is the shorter building to the nearest foot?



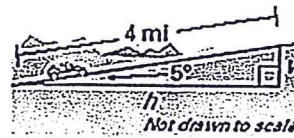
9. Staircase A staircase has an angle of elevation of 28° and covers a total distance of 17 feet. To the nearest foot, what is the vertical height h covered by the staircase?

~~$\tan 28^\circ = \frac{h}{17}$~~
 $\sin 28^\circ = \frac{h}{17}$
 $17 \cdot \sin 28^\circ \approx$



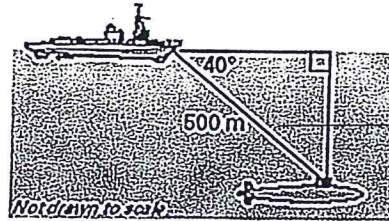
10. Highway You are traveling along a stretch of highway that has a slight grade with an angle of inclination of 5° . After traveling for 4 miles, what is the vertical v and horizontal h change in feet? (1 mi = 5280 ft) Round your answer to the nearest foot.

$\cos 5^\circ = \frac{h}{4}$ $\sin 5^\circ = \frac{v}{4}$
 $4 \cdot \cos 5^\circ =$ $4 \cdot \sin 5^\circ =$



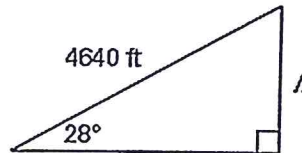
11. Submarine A sonar operator on a ship detects a submarine at a distance of 500 meters and an angle of depression of 40° . How deep is the submarine?

$\sin 40^\circ = \frac{x}{500}$
 $500 \cdot \sin 40^\circ = x$

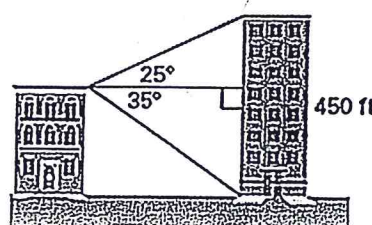


12. Ski Lift A chair lift on a ski slope has an angle of elevation of 28° and covers a total distance of 4640 feet. To the nearest foot, what is the vertical height h covered by the chair lift?

$4640 \cdot \sin 28^\circ = \frac{h}{4640} \cdot 4640$



3. Height of a Building A 450 foot tall building is near a shorter building. A person on top of the shorter building finds the angle of elevation of the roof of the taller building to be 25° and the angle of depression of its base to be 35° . How far apart are the two buildings to the nearest foot? How tall is the shorter building to the nearest foot?



$x = \frac{y}{\tan 35^\circ}$
 $\tan 35^\circ = \frac{450 - y}{x}$

$x = (\tan 35^\circ) \left(\frac{450 - y}{\tan 35^\circ} \right)$

$\frac{y}{\tan 25^\circ} = \frac{450 - y}{\tan 35^\circ}$