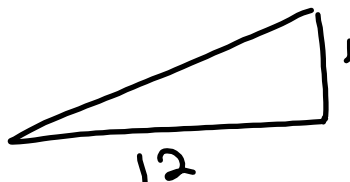
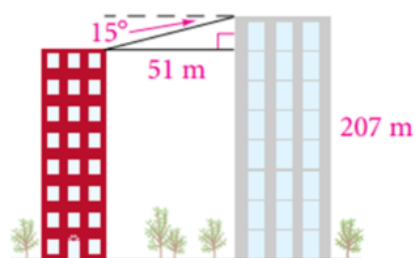


**Engineering** The Americans with Disabilities Act states that wheelchair ramps can have a slope no greater than  $\frac{1}{12}$ . Find the angle of elevation of a ramp with this slope. Round your answer to the nearest tenth.

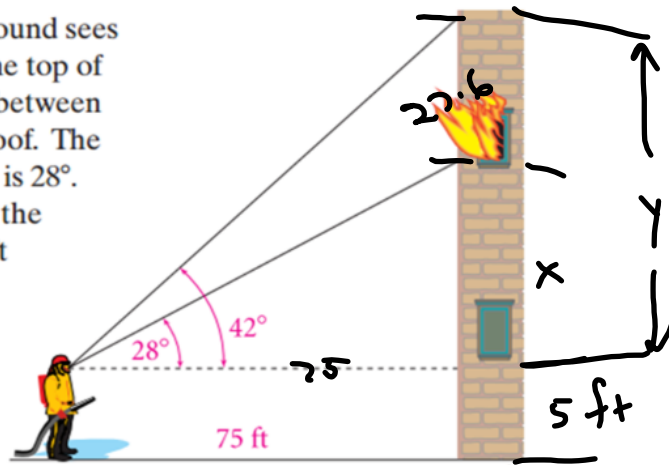


**Construction** Two office buildings are 51 m apart. The height of the taller building is 207 m. The angle of depression from the top of the taller building to the top of the shorter building is  $15^\circ$ . Find the height of the shorter building to the nearest meter.



**Aerial Television** A blimp is providing aerial television views of a football game. The television camera sights the stadium at a  $7^\circ$  angle of depression. The blimp's altitude is 400 m. What is the line-of-sight distance from the TV camera to the stadium, to the nearest hundred meters?

**Firefighting** A firefighter on the ground sees fire break through a window near the top of the building. There is voice contact between the ground and firefighters on the roof. The angle of elevation to the windowsill is  $28^\circ$ . The angle of elevation to the top of the building is  $42^\circ$ . The firefighter is 75 ft from the building and her eyes are 5 ft above the ground. What roof-to-windowsill distance can she report to the firefighters on the roof?

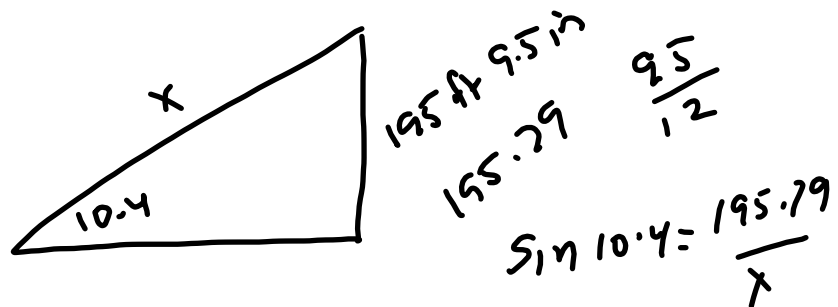


$$\tan 28 = \frac{x}{75} \quad \tan 42 = \frac{y}{75}$$

$$x = 39.9 \quad y = 67.5 \quad 67.5 - 39.9 =$$

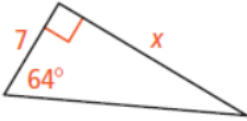
**Recreation** A skateboarding ramp is 12 in. high and rises at an angle of  $17^\circ$ . How long is the base of the ramp? Round to the nearest inch.

**Public Transportation** An escalator in the subway station has a vertical rise of 195 ft 9.5 in., and rises at an angle of  $10.4^\circ$ . How long is the escalator? Round to the nearest foot.



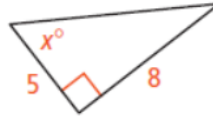
Find each missing measure. Round to the nearest tenth.

1.



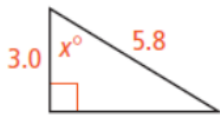
$$\tan 64 = \frac{x}{7}$$

2.



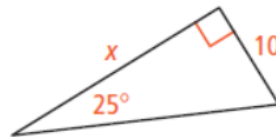
$$\tan^{-1} x = \frac{8}{5}$$

3.



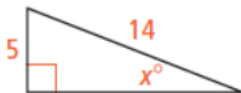
$$\cos^{-1} x = \frac{3}{5.8}$$

4.



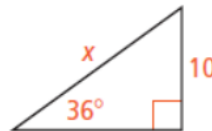
$$\tan 25 = \frac{10}{x}$$

5.



$$\sin^{-1} x = \frac{5}{14}$$

6.



$$\sin 36 = \frac{10}{x}$$

7.

