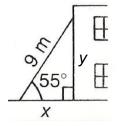


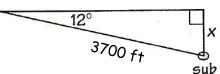
## **SM2 11.4 Trigonometry Story Problems**

Read the following stories. Draw a picture if needed. Define the variable. Set up an equation. Solve the equation and show work. Be sure to label your answer. Round answers to the nearest tenth.

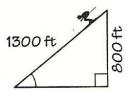
- 1. As it leans against a building, a 9-meter ladder makes an angle of 55° with the ground.
  - a. How far is the bottom of the ladder from the base of the building?
  - b. How far up the building does the ladder reach?



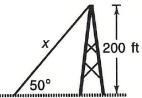
2. A submarine dives at an angle of 12° to the surface of the water. When the submarine has traveled 3700 feet, how deep is it?



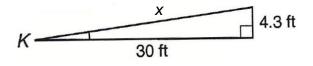
3. A skier drops 800 vertical feet while skiing 1300 feet. What is the angle of the ski slope with the horizontal?



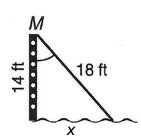
4. A cable from the top of a 200-ft telephone tower makes a  $50^{\circ}$  angle with the ground. How long is the cable?



- 5. A wheelchair ramp rises 4.3 ft over a distance of 30 ft.
  - a. How long is the ramp?
  - b. What angle does the ramp make with the ground?



- 6. The top of an 18-ft waterslide is 14 ft above the ground.
  - a. What angle does the slide make with the vertical ladder?
  - b. How far is the bottom of the slide from the bottom of the ladder?



7.	A person is 75 feet from the base of a barn. The angle formed from the person to the top of the barn is 60°. How tall is the barn?
8.	A tree 40 feet high casts a shadow 58 feet long. Find the measure of the angle of elevation of the sun.
9.	An airplane rises vertically 1000 feet over a horizontal distance of 5280 feet. What is the angle of elevation of the airplane's path?
10	. A balloon on a 40-foot string makes an angle of 50° with the ground. How high above the ground is the
	balloon if the hand of the person holding the balloon is 6 feet above the ground?