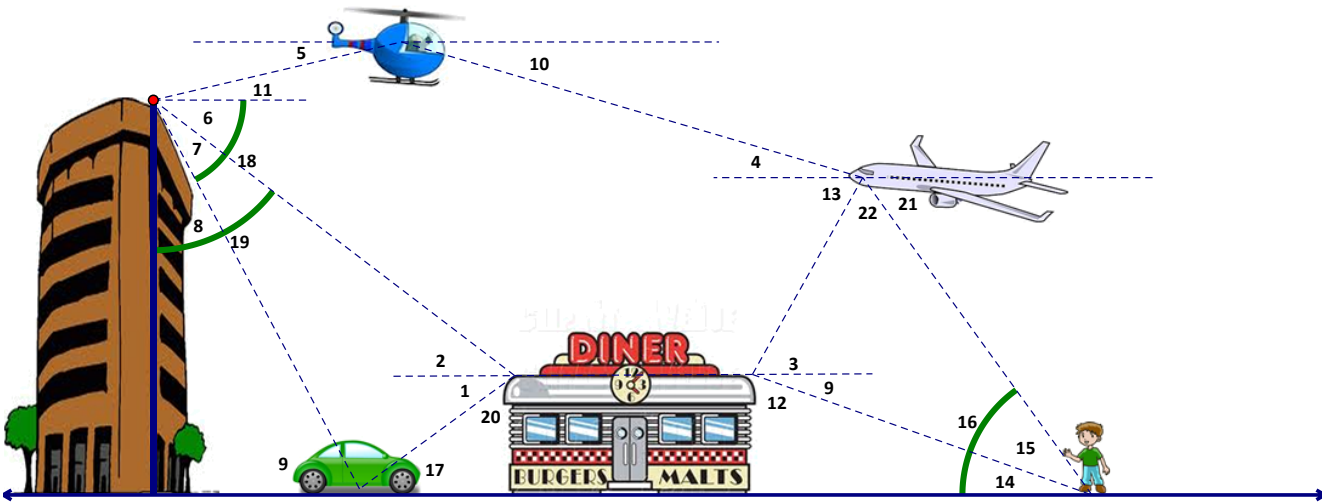
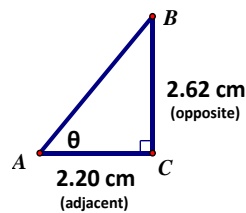


1. Choose the correct angle number for the provided description.



- a) the angle of elevation from the **CAR** to the top of the **DINER** is _____.
- b) the angle of depression from the top of the **TALL BUILDING** to the **DINER** is _____.
- c) the angle of elevation from the **PLANE** to the **HELICOPTER** is _____.
- d) the angle of depression from the top of the **DINER** to the **BOY** is _____.
- e) the angle of depression from the **HELICOPTER** to the **PLANE** is _____.
- f) the angle of depression from the **PLANE** to the top of the **DINER** is _____.
- g) the angle of elevation from the **BOY** to the top of the **DINER** is _____.
- h) the angle of depression from the top of the **TALL BUILDING** to the top of the **CAR** is _____.
- i) the angle of depression from the **HELICOPTER** to the top of the **TALL BUILDING** is _____.
- j) the angle of elevation from the top of the **DINER** to the top of the **TALL BUILDING** is _____.
- k) the angle of elevation from the top of the **DINER** to the **PLANE** is _____.
- l) the angle of depression from the top of the **DINER** to the **CAR** is _____.
- m) the angle of elevation from the **BOY** to the front of the **PLANE** is _____.
- n) the angle of depression from the front of the **PLANE** to the **BOY** is _____.
- o) the angle of elevation from the **TALL BUILDING** to the **HELICOPTER** is _____.

Recall solving for an angle using the inverse trig function:

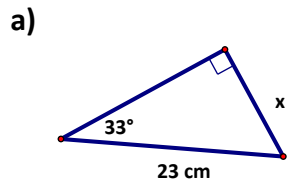


$$\tan \theta = \frac{\textit{Opposite}}{\textit{Adjacent}}$$

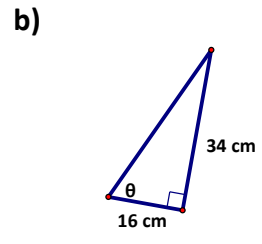
$$\tan \theta = \frac{2.62}{2.20}$$

$$\tan^{-1}\left(\frac{2.62}{2.20}\right) = \theta$$

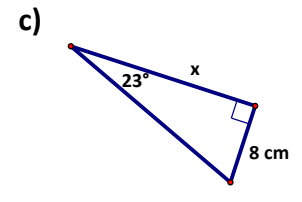
2. Solve for the missing information indicated by the variable. Round all final answers to 1 decimal place.



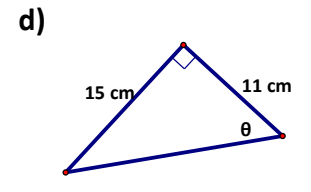
$x \approx$ _____



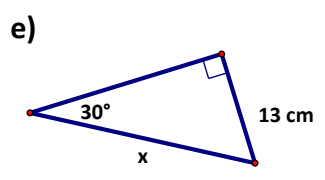
$\theta =$ _____



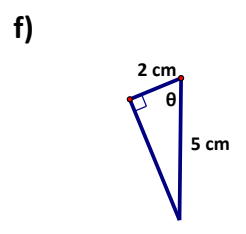
$x \approx$ _____



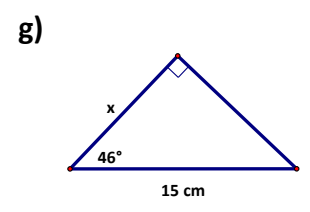
$\theta =$ _____



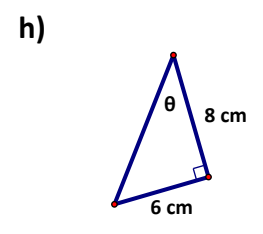
$x \approx$ _____



$\theta =$ _____

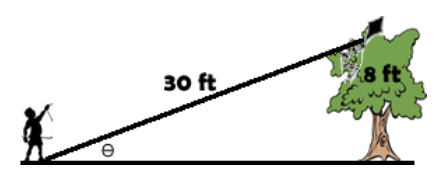


$x \approx$ _____

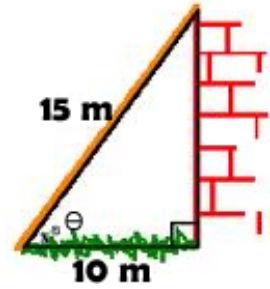


$\theta =$ _____

3. You are flying a kite and have let out 30 ft of string but it got caught in a 8 ft tree. What is the angle of elevation to the location of the kite? (Round to the nearest hundredth)



4. A 15 m pole is leaning against a wall. The foot of the pole is 10 m from the wall. Find the angle, to the nearest hundredth, that the pole makes with the ground.



For problems 5-7, draw the diagram, including the right triangle. You do not need to solve the problem.

5. A helicopter is hovering 75 feet high above a landing pad. A man is standing 100 feet from the landing pad. Label the angle of elevation from the man to the helicopter as α . Label the angle of depression from the helicopter to the man below as β . What is the relationship between α & β ? _____



6. A satellite dish needs to be anchored to the ground with a guy wire. The dish is 3 feet from the roof, and the angle of elevation the guy wire makes with the dish is 35° .

7. A man is in a lighthouse tower that is 30 ft. He spots a ship at sea at an angle of depression of 10° .

For problems 8&9, draw the diagram and the right triangle. Label the piece to solve for as x or θ .

8. Sharon is flying a kite on a string 130 m long. The string is at an angle of 37° elevation from the ground. Determine the height of the kite to the nearest tenth of a meter.

9. Yolanda is flying a kite on a string 130 m long. Determine the angle of elevation to the nearest hundredth of a degree if she is standing 100 m away along the ground.

**For problems 10-13, first draw the diagram and then solve for the requested information.
(All answers to 2 decimal places, unless otherwise instructed.)**

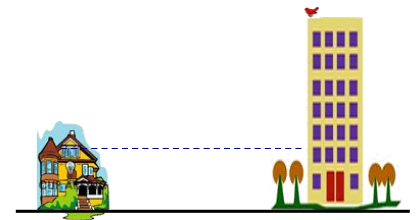
10. A loading ramp is 25 m long with a height of 10 m. What is the horizontal distance of the ramp and what is the angle of incline that the ramp forms with the ground?



11. An airplane is flying at an altitude of 6000 m over the ocean directly toward an island. When the angle of depression of the coastline from the airplane is 14° , how much farther does the airplane have to fly before it crosses the coast?



12. Mike Patterson looks out the attic window of his home, which is 22 ft above the ground. At an angle of elevation of 35° he sees a bird sitting at the very top of the large high rise apartment building down the street. How tall is the high rise apartment building, if the two buildings are 75 ft apart?



13. Given ABCD is a rectangle with a perimeter of 34, find the measure of angle E to the nearest tenth of a degree.

