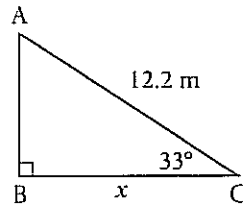
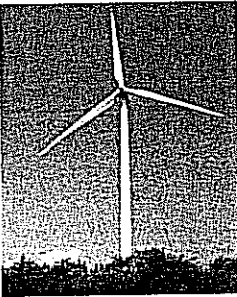


SOHCAHTOA Applications

1. Find the length of BC to the nearest tenth of a metre.



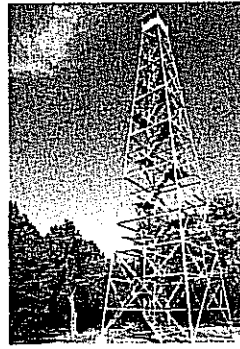
2.



From a point 4.5 m from the base of a wind turbine, the angle of elevation to the top of the turbine is 87° . Find the height of the wind turbine to the nearest tenth of a metre.

3. From a point 9.3 m from the base of a billboard, the angle of elevation to the top of the billboard is 28° . Find the height of the billboard to the nearest tenth of a metre.

4. A forest ranger is in a fire tower 120 ft above the ground. She sights a fire at an angle of depression of 3° . How far is the fire from the base of the tower, to the nearest foot?



5. From the top of a 38.5 m-high cliff, the angle of depression to a boat is 38° . How far is the boat from the base of the cliff, to the nearest metre?

6. A 4-m long ladder is leaning up against the side of a garage. It reaches 3.8 m up the side of the garage wall. Find the angle the ladder makes with the ground, to the nearest degree.

7. A lighthouse sits at the top of a cliff. The top of the lighthouse is 41 m above the water. The angle of depression to a small sailboat is 22° . Describe how you would find the distance from the sailboat to the base of the cliff.
8. Tonya is standing 17 m from the base of a tower. She measures the angle of elevation to the top of a tower to be 33° . What is the height of the tower, to the nearest metre?
9. A flagpole casts a shadow 22 m long when the sun's rays make an angle of 30° with the ground. How tall is the flagpole, to the nearest metre?

10. Marlene is making a pen in her backyard for her daughter's pet rabbits. She makes the pen in the shape of a right triangle. Two sides of the pen each measure 3 m. What is the length of the third side?
11. Two buildings are 15 m apart. From the top of the shorter building, the angle of elevation to the top of the taller building is 48° , and the angle of depression to the bottom of the taller building is 34° . Find the heights of the two buildings to the nearest tenth of a metre.

Answers

- | | |
|---------------|-----------------------|
| 1. 10.2 m | 7. 101 m |
| 2. 85.9 m | 8. 11 m |
| 3. 4.9 m | 9. 13 m |
| 4. 2290 ft | 10. 4.2 m |
| 5. 49 m | 11. 10.1 m and 26.8 m |
| 6. 72° | |