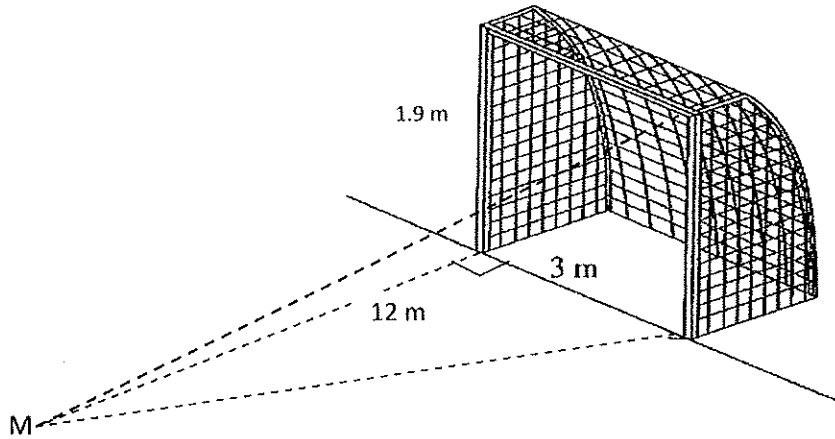


**PROBLEM SOLVING ASSIGNMENT ON PYTHAGORAS and TRIGONOMETRY**

**Question 1**

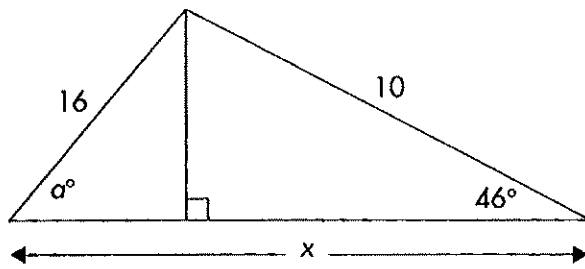
A soccer player stands at point M, 12m directly in front of the right goal post and shoots at goal. His shot just hits the cross bar in the top left hand corner. The goal is 1.9 m high. Calculate the distance travelled by the ball.



**Question 2**

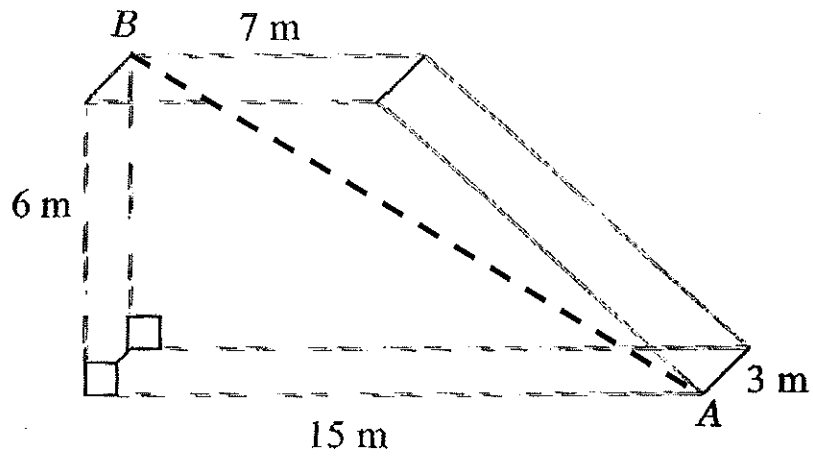
A TV antenna stands on top of a hill. From a point on horizontal ground 1.6 km away, the angle of elevation to the base of the tower is  $6^\circ$ , and the angle of elevation to the top of the antenna is  $8^\circ$ . Calculate the height of the antenna. Give your answer to the nearest metre.

- 13 Find the values of the pronumerals in this diagram. State your answers correct to one decimal place.



Question 5

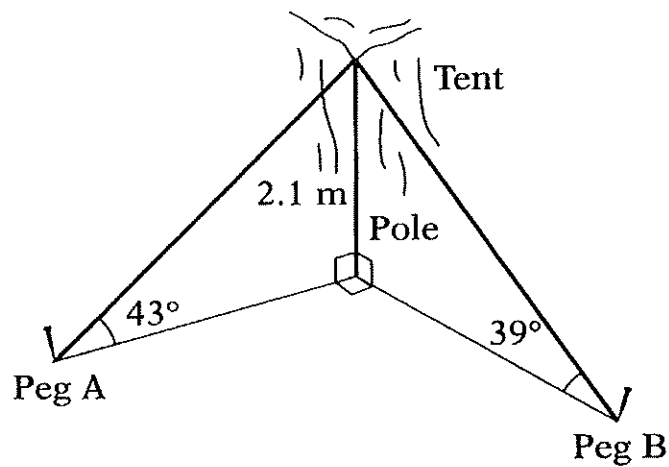
The picture below shows a ski jump:



- Calculate the length of a diagonal line connecting A to B. Give your answer correct to two decimal places.
- Calculate the angle of elevation from A to B. Give your answer correct to one decimal place.
- What is the angle of depression from B to A?

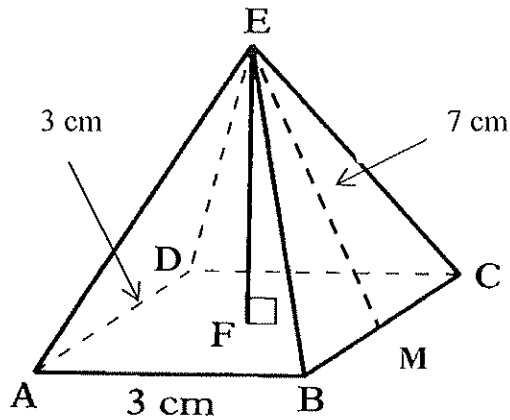
### Question 3

Two ropes secure a tent pole 2.1 m high in two directions. The ropes are held by pegs A and B at angles of  $43^\circ$  and  $39^\circ$  to the horizontal, as shown in the diagram below:



- Calculate the distance of peg A from the base of the tent pole. Give your answer correct to two decimal places.
- Calculate the distance of peg B from the base of the pole. Give your answer correct to two decimal places.
- Calculate the distance from peg A to peg B. Give your answer correct to one decimal place.

**Question 3**



The square based pyramid shown above has a base with a sidelength of 3 cm. The length of EM is 7 cm.

- What is the length of FM?
- Calculate, correct to two decimal places, the height EF of the pyramid.
- Calculate the magnitude of the angle  $\angle EMF$ .
- Calculate the length of slant edge EB, correct to two decimal places.
- Calculate the magnitude of the angle  $\angle EBF$ . Give your answer to the nearest degree
- What is the magnitude of the angle  $\angle BED$ ?