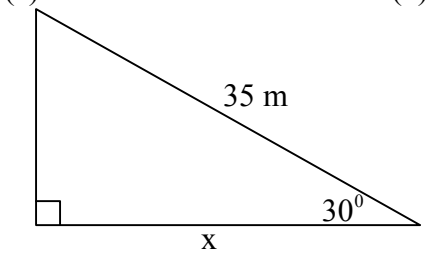
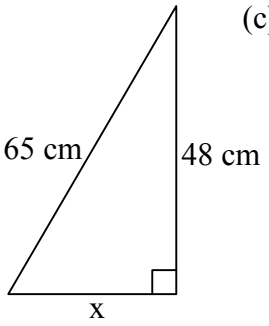
Pythagoras / Trigonometry

1. Calculate x in each triangle below

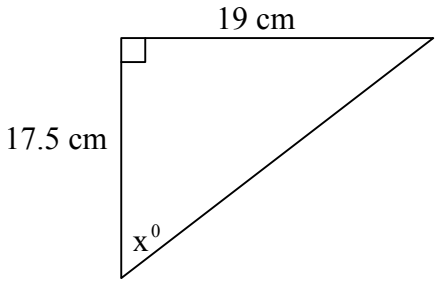
(a)



(b)

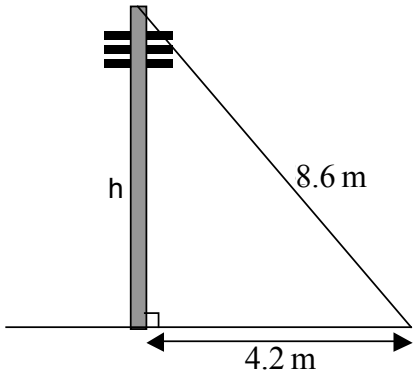


(c)



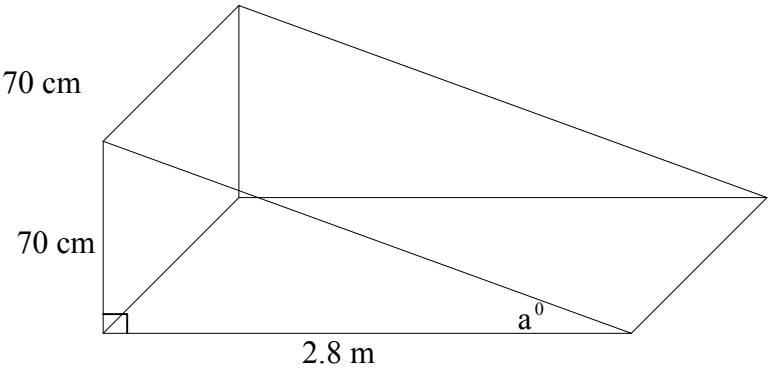
2. A telegraph pole is connected to the ground by wires. Each wire is 8.6 metres long and is fixed to the ground 4.2 metres from the pole.

   Use this information to calculate the height of the telegraph pole.



3. A ramp 2.8 metres long is at a height of 70 cm at its highest point.

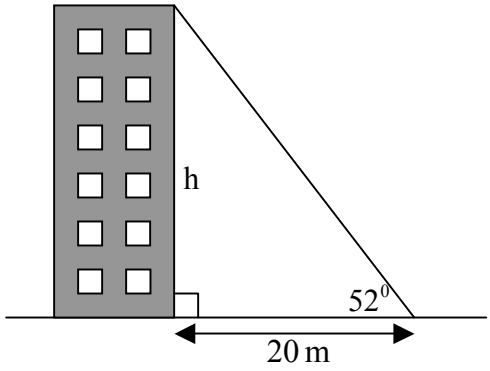
   Calculate, a^o, the angle the ramp makes with the ground.



4. The diagram opposite shows a block of flats.

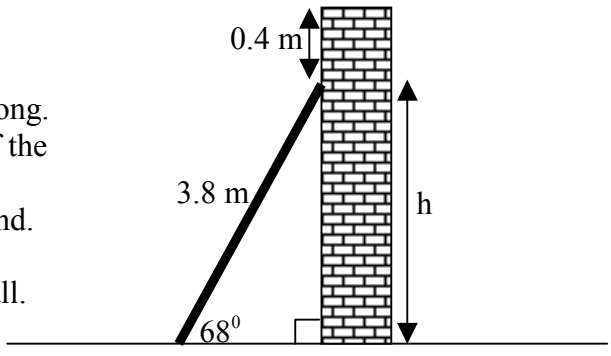
   From a distance of 20 metres the angle of elevation to the top of the flats is 52^0.

   Calculate h, the height of the block of flats.

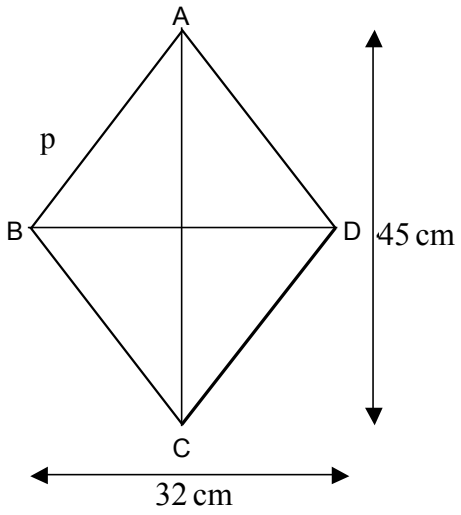


5. A wall is supported by a wooden beam 3.8 m long. The beam meets the wall o.4 m from the top of the wall.
   The beam makes an angle of 68^0 with the ground.

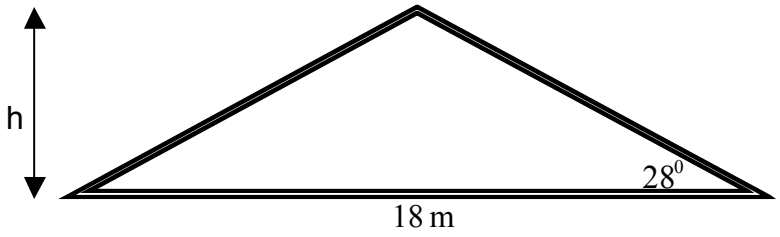
   Calculate h and hence find the height of the wall.



6. ABCD is a rhombus whose diagonals are 32 cm and 45 cm.
Calculate p, and hence find the perimeter of this rhombus

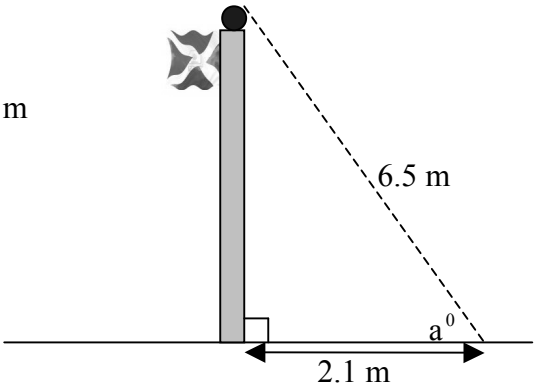


7. The diagram shows the end view of the roof of a house which is in the shape of an isosceles triangle.
Calculate h, the height of the roof.

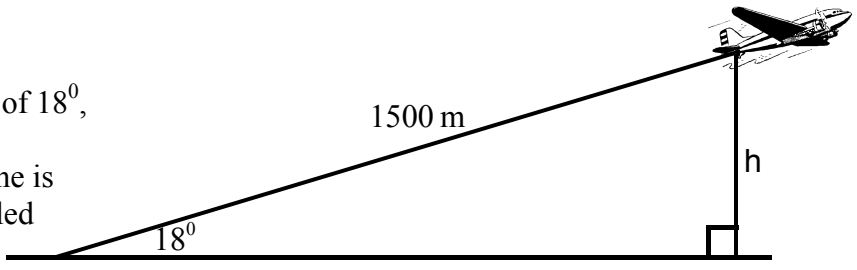


8. The diagram shows a flagpole. From a distance of 2.1 m the distance to the top of the flagpole is 6.5 m.

Calculate the size of the angle a^0, the wire makes with the ground.

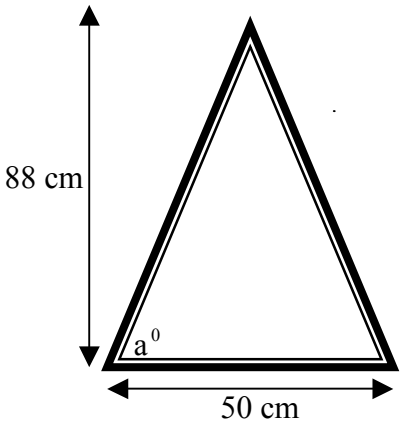


9. An aeroplane takes off at an angle of 18^0, as shown opposite.
Calculate the height, h, the aeroplane is above the ground after it has travelled 1500 metres.



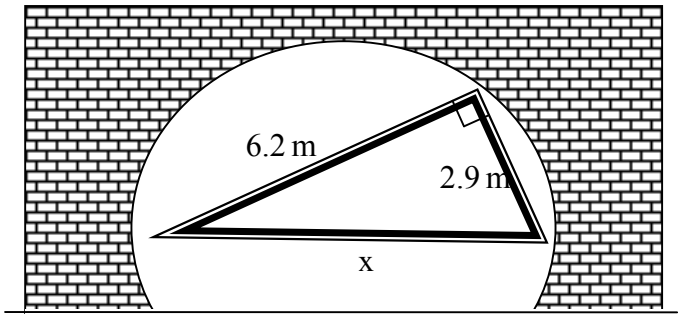
10. The front of a display case is in the shape of an isosceles triangle. The height of the case is 88 cm and the width of the base is 50 cm.

Calculate the size of angle a^0.

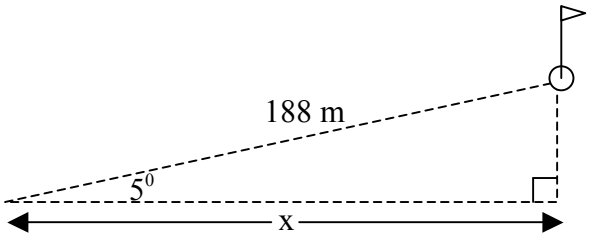


11. A tunnel under repair is supported by. metal girders as shown.

Calculate the length x, of the longest girder.

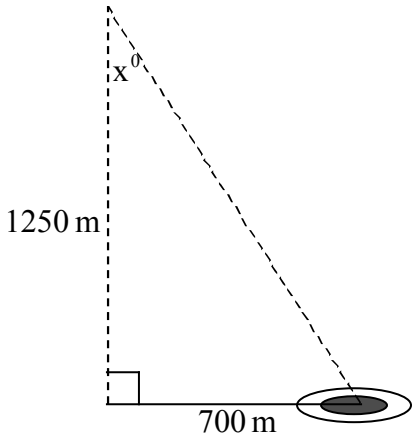


12. A golfer is 188 metres from a hole. He hits the ball and it travels off course at an angle of 5^0.
Use the information in the diagram to find x, the distance the golfer hit the ball.

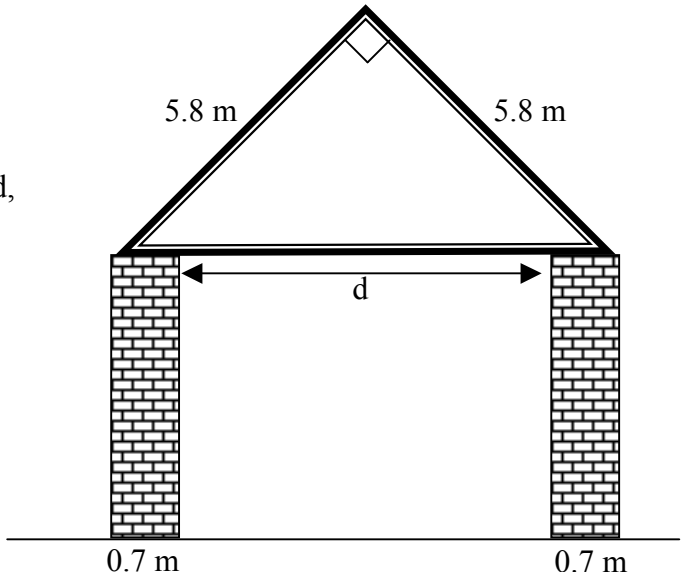


13. A parachutist is 1250 metres above the ground. He is aiming to hit a target marked by a red circle, as shown in the diagram.

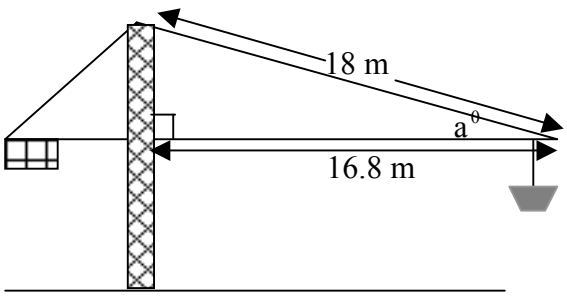
Calculate x^0, the size of the angle of his descent.



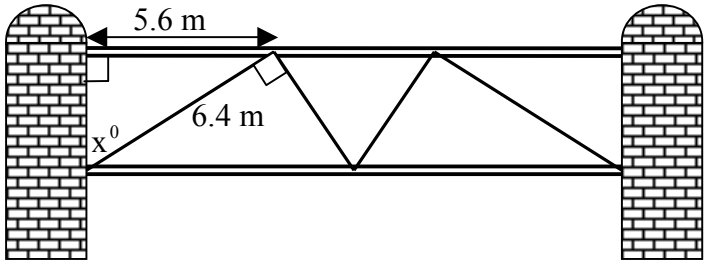
14. The diagram shows the walls and roof of a barn.
Given the information in the diagram find d, the distance between the walls of the barn.



15. The diagram shows a crane.
Given the information in the diagram find the size of angle a^0.



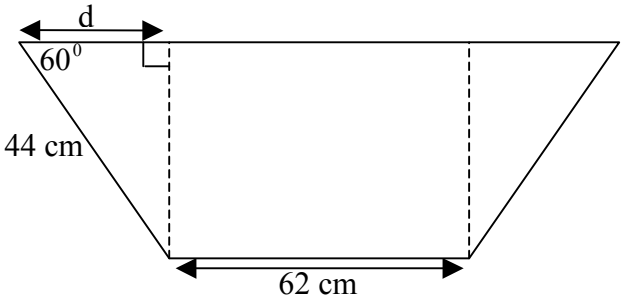
16. The diagram below shows a bridge. The bridge is supported by girders 6.4 metres long, as shown.



Calculate x^0, the angle the girder make with the wall.

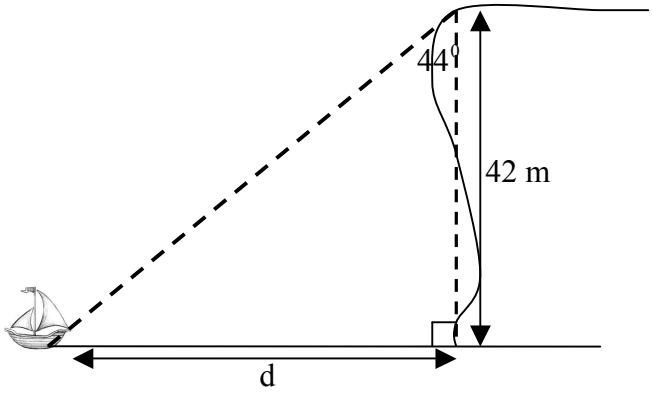
17. The diagram shows the end view of a water trough. The base of the trough is 62 cm long and the sloping side of the trough is 44 cm.
Calculate

(a) the distance d.
(b) the width of the top of the trough.



18. From the top of a cliff, 42 metres high, the angle to a yacht out at sea is 44^0.

Calculate d, the distance the yacht is from the base of the cliff.



19. The diagram shows three churches.

Church B is 2.1 kilometres due east of church A.
Church C is 1.5 kilometres due north of church B.

Calculate a^0, the bearing of church B.
C from church A.