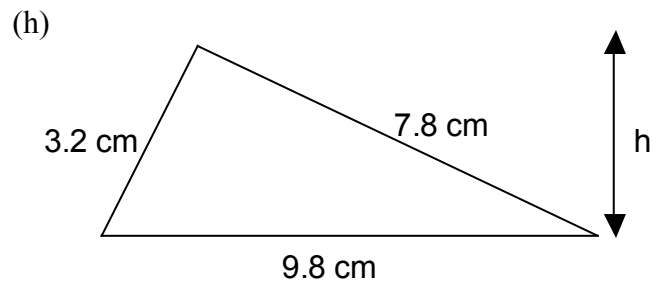
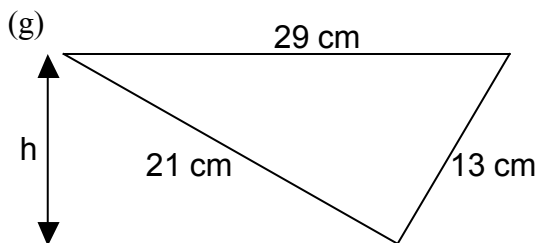
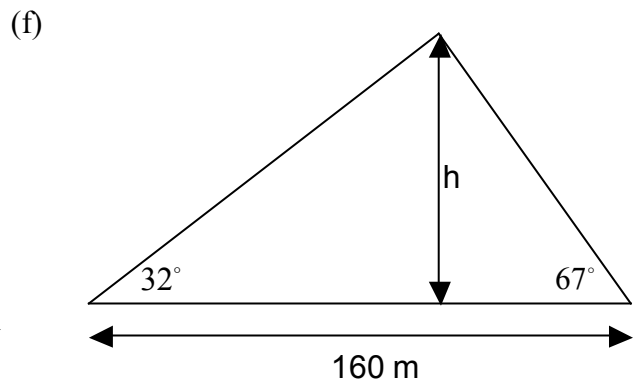
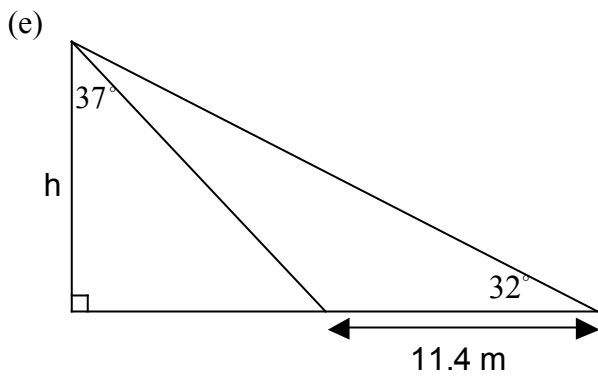
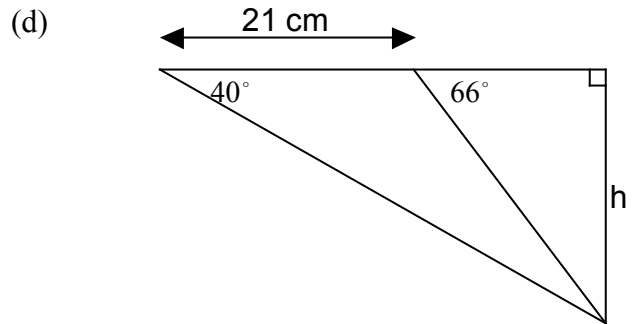
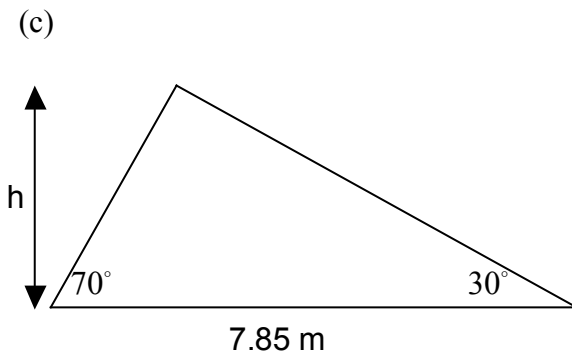
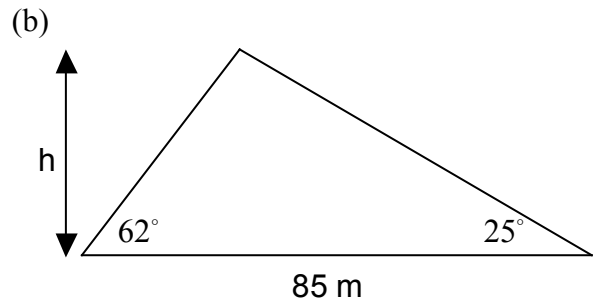
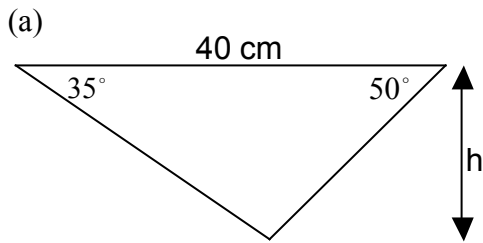
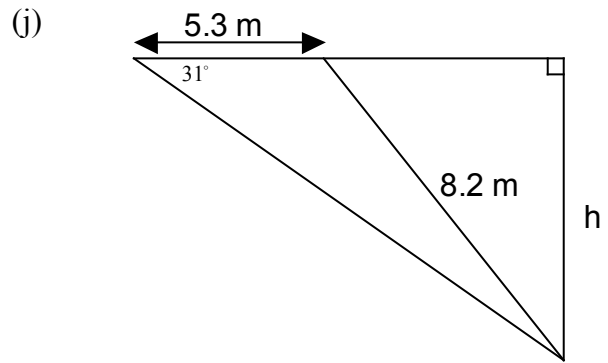
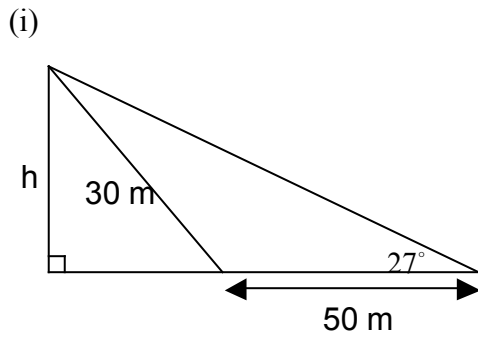


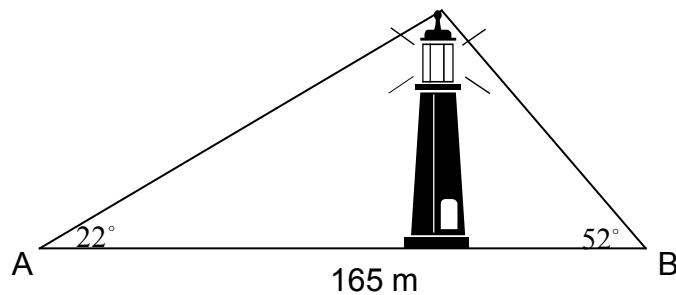
Trigonometry – problems

1. Calculate h in each of the following



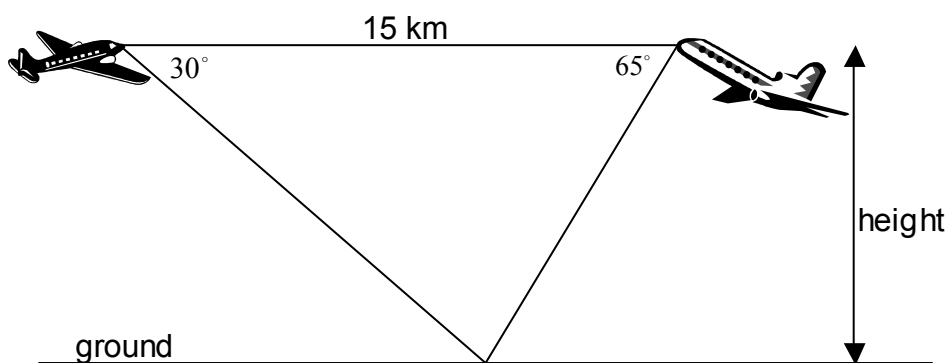


2. A surveyor is measuring the height of a lighthouse. From two points A and B, 165 metres apart he measures the angles of elevation to the top of the lighthouse. From A the angle of elevation is 22° and from B the angle is 48° .



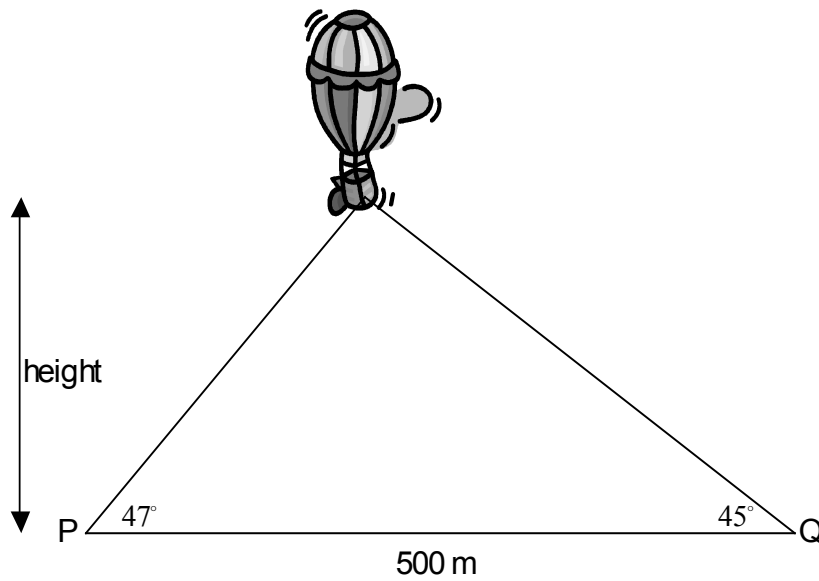
Calculate the height of the lighthouse.

3. Two aeroplanes, 15 kilometres apart, are the same height above the ground, as shown below. The angle of depression from one aeroplane to the ground is 30° and from the other is 65° .



Calculate the height of the aeroplanes above the ground.

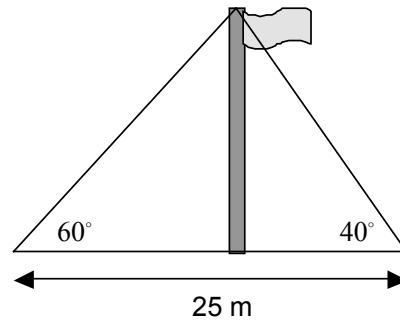
4. From two points 500 metres apart a balloon can be seen in the sky. From P the angle of elevation to the balloon is 47° and from Q the angle is 45° .



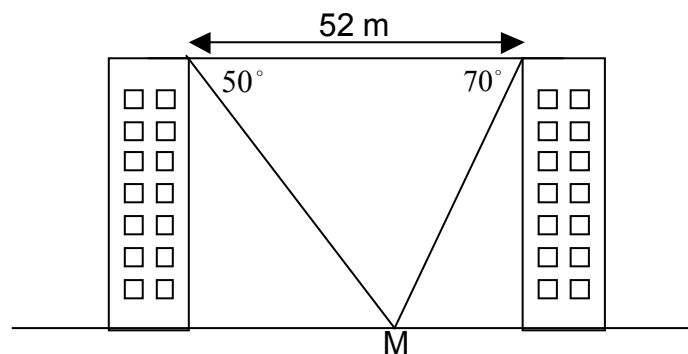
Calculate the height of the balloon above the ground.

5. A flagpole is connected to the ground by two wires as shown opposite.

Calculate the height of the flagpole.

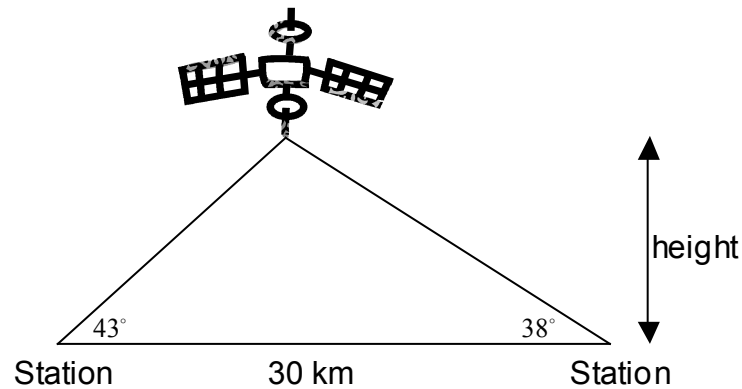


6. Two identical buildings are 52 metres apart, as shown in the diagram below.



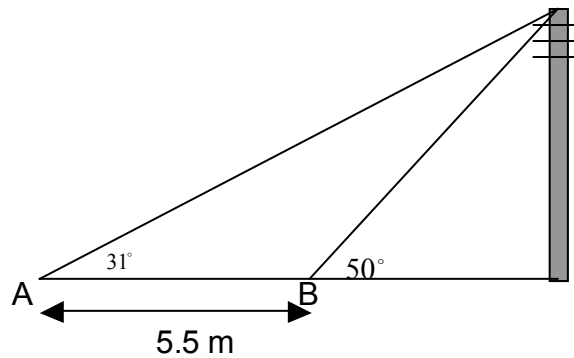
Calculate the height of the buildings.

7. Two satellite tracking stations are 30 kilometres apart. From one, the angle of elevation to a satellite is 43° , and from the other the angle of elevation to the same satellite is 38°



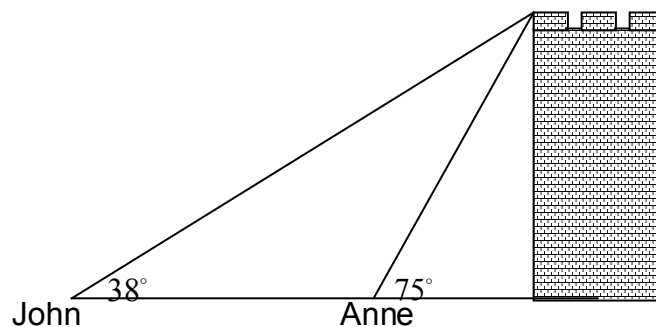
Calculate the height of the satellite above the ground.

8. From A the angle of elevation to the top of a telegraph pole is 31° . From B the angle of elevation to the top of the same pole is 50° .



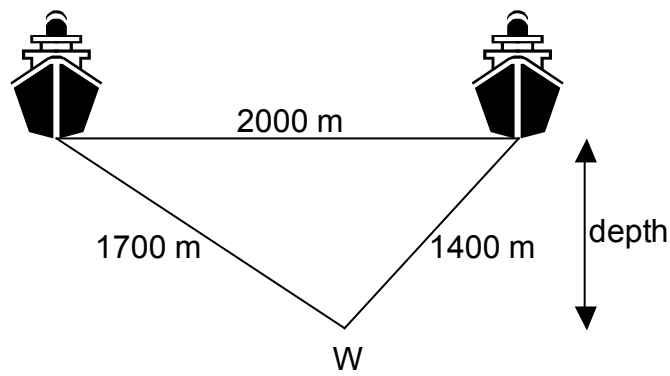
Calculate the height of the telegraph pole.

9. John and Anne are standing 25 metres apart. From John's position the angle of elevation to the top of a tower is 38° and from Anne's position the angle of elevation to the same tower is 75° .



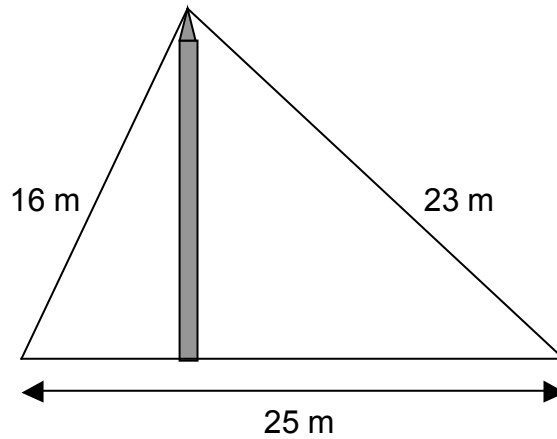
Calculate the height of the tower.

10. Two ships are positioned 2000 metres apart. Each ship detects a wreck, W, on the sea bed, as shown below.



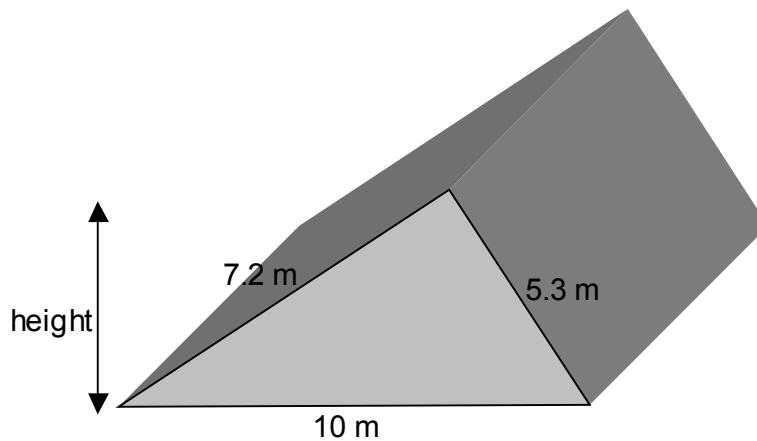
Calculate the depth of the wreck, W, below the surface.

11. An obelisk has to be supported by two steel cables while repairs are carried out. The cables are 16 metres and 23 metres long and are connected to the ground 25 metres apart.



Calculate the height of the obelisk.

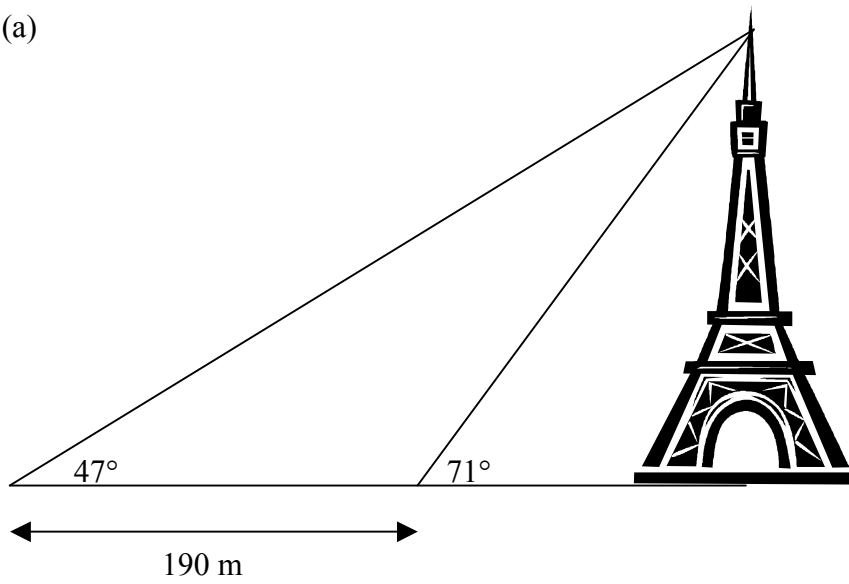
12. The diagram shows the end view of a roof with dimensions as shown.



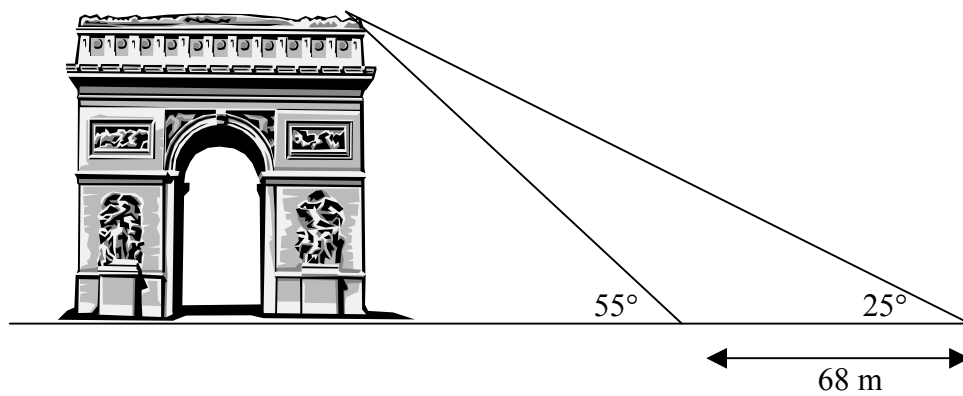
Calculate the height of the roof.

13. Below are diagrams of the Eiffel Tower and the Arc de Triomphe in Paris, with measurements as shown.

(a)



(b)



Calculate the height of each monument.