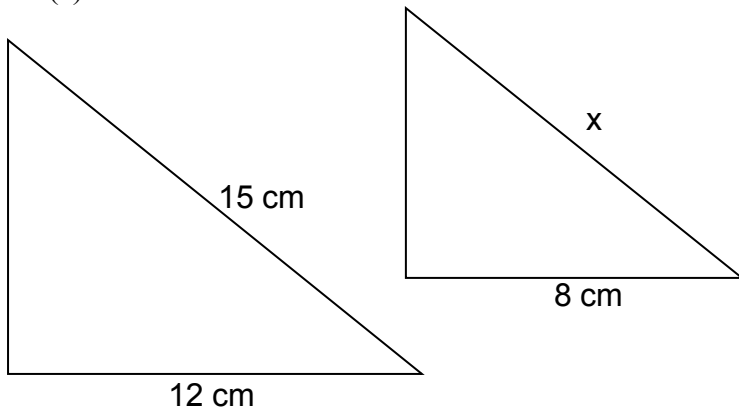


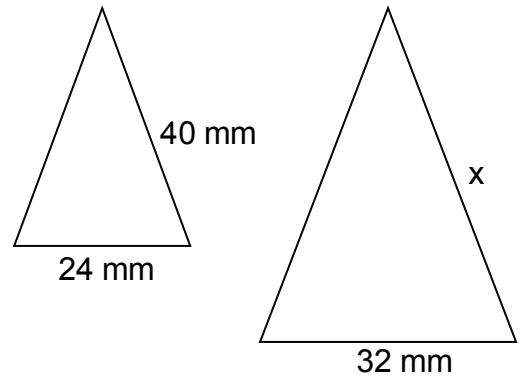
## Similar Triangles

1. In each question below the triangles given are similar. Calculate  $x$  in each part.

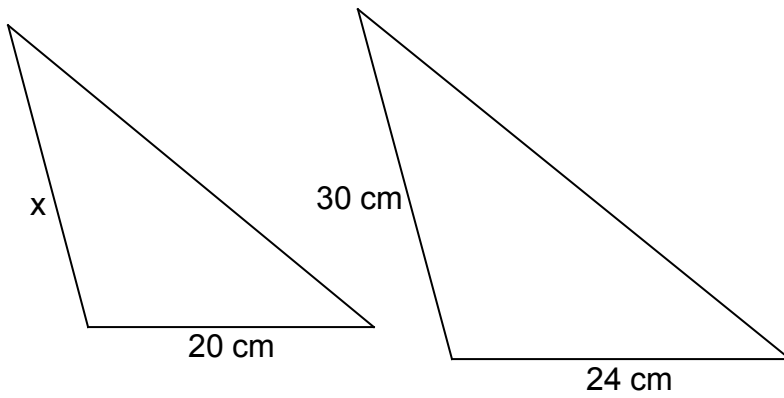
(a)



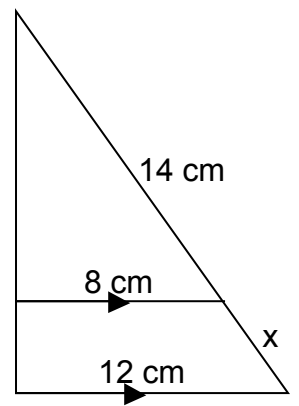
(b)



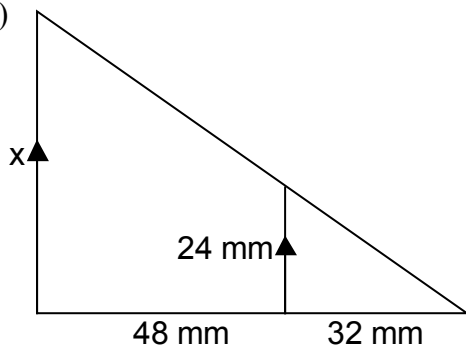
(c)



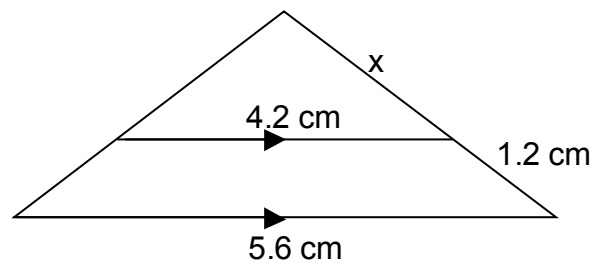
(d)



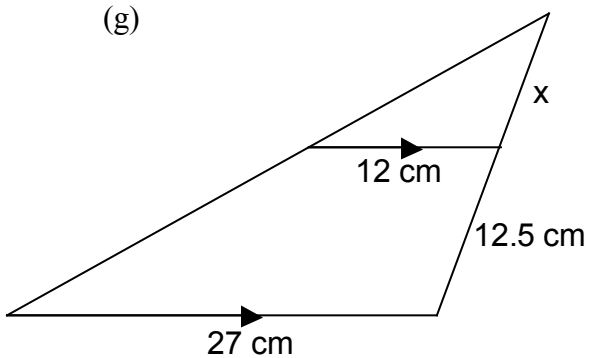
(e)



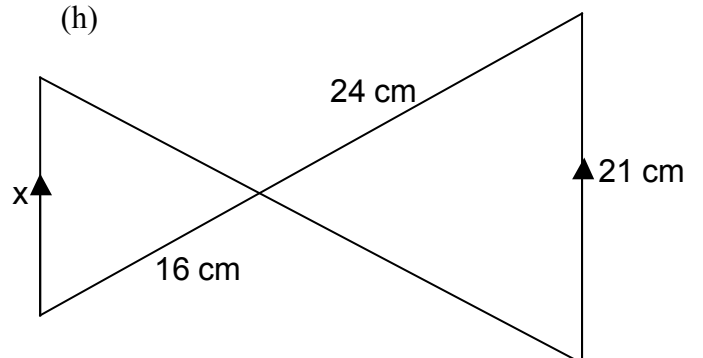
(f)

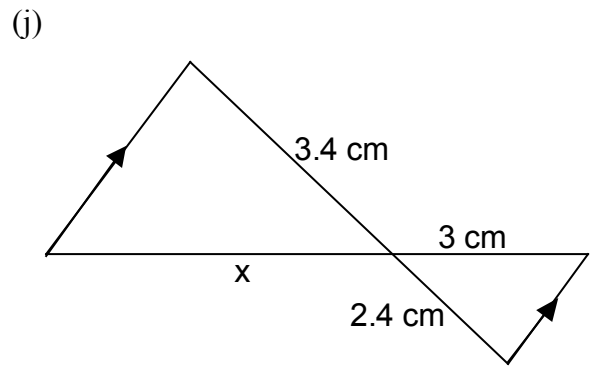
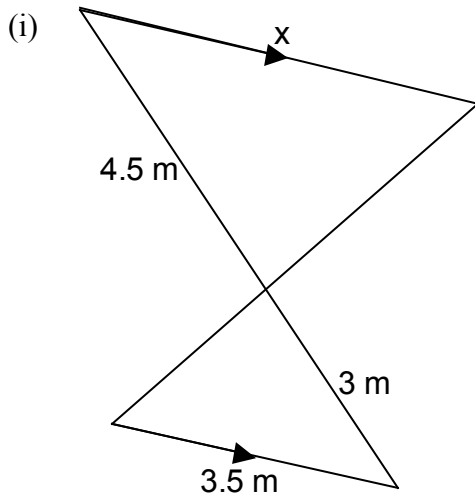


(g)

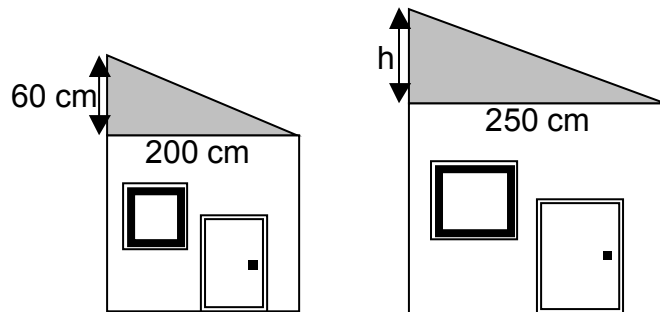


(h)



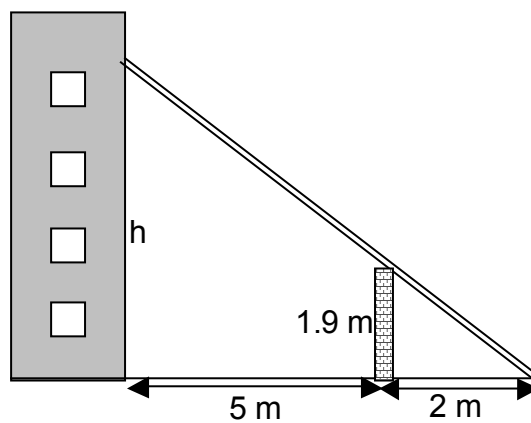


2. The Select Shed Co. sell two different sizes of shed. The angle of slope of each roof is the same.



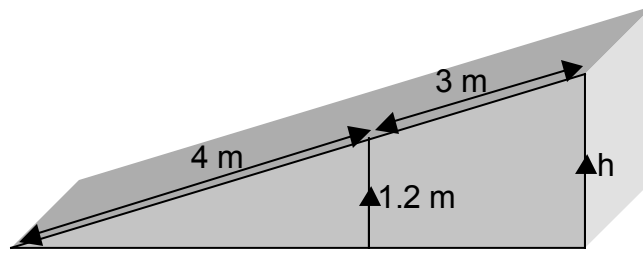
Calculate  $h$ .

3. The foot of window cleaner's ladder is 2 metres from the base of a wall and rests against a block of flats a further 5 metres away.

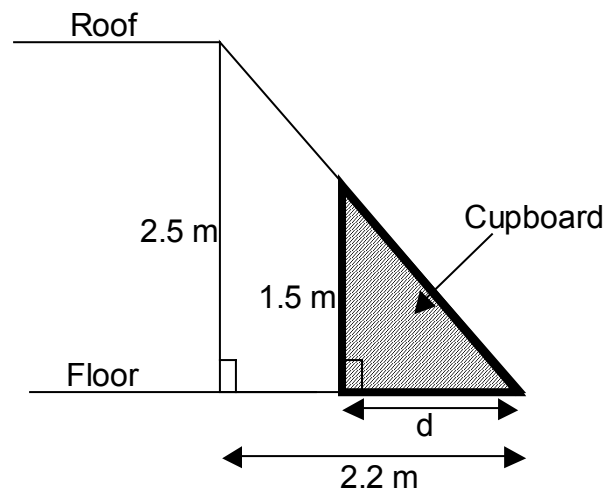


Calculate  $h$ , how far up the block of flats the ladder reaches.

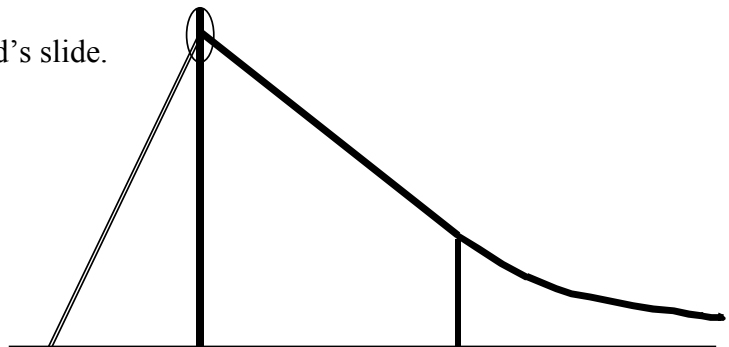
4. After walking 4 metres up a ramp a boy is 1.2 metres above the ground.  
How far above the ground will the boy be after walking a further 3 metres.



5. An attic roof has a sloping end wall with a built-in cupboard as shown below.  
The height of the cupboard is 1.5 metres.  
Calculate the depth,  $d$ , of the cupboard.

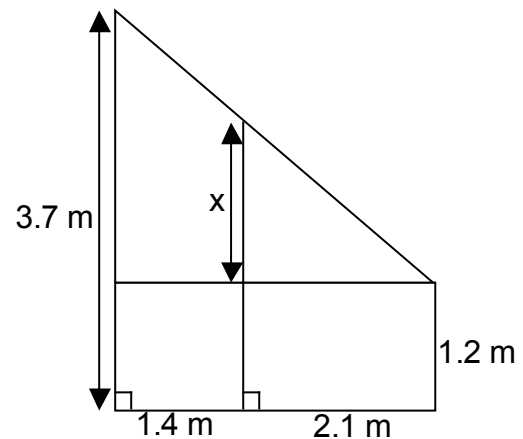


6. The diagram opposite shows a child's slide.

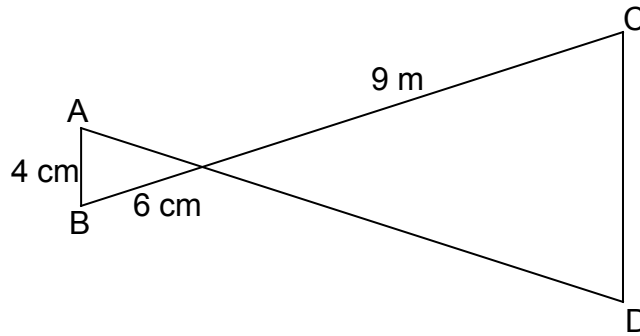


To increase safety an extra pillar is added to support the straight run of the slide, as shown opposite..

Calculate  $x$  and hence find the height of the extra pillar.

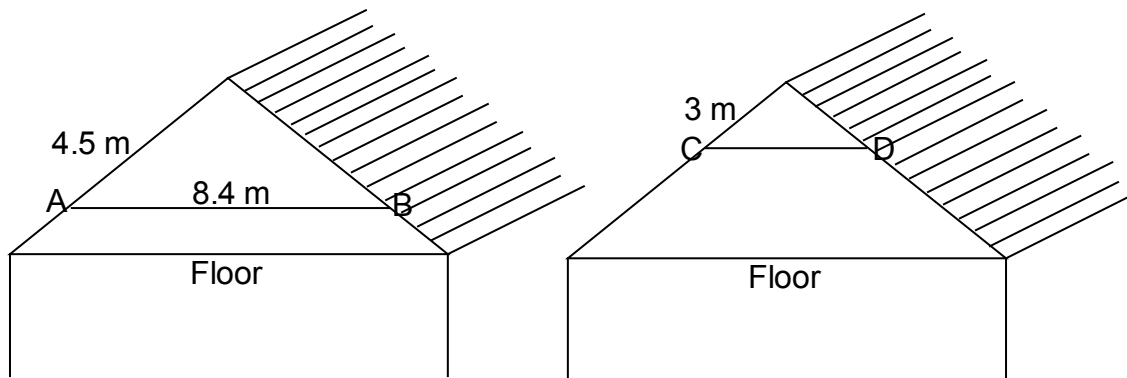


7. The diagram below shows the position of a slide as it is placed in a projector and the resulting picture on a screen.  
The position of the slide AB is parallel to the screen CD.



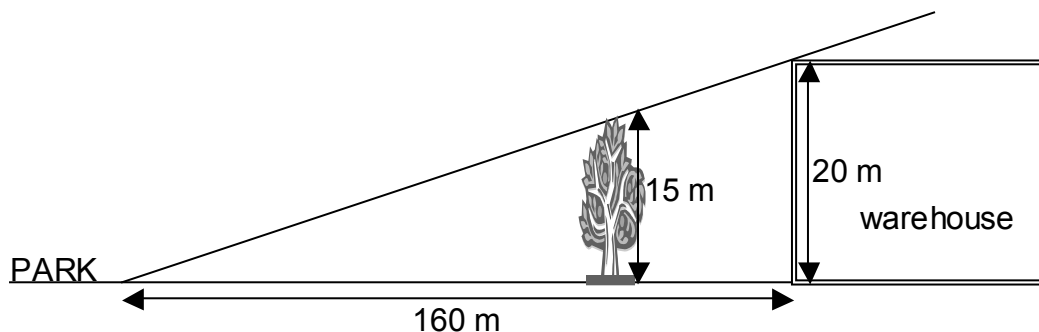
Calculate the height of the screen CD.

8. The Smith family want to convert the roof space of their bungalow into an extra room. To do this they must move the wooden beam AB into position CD, as shown.



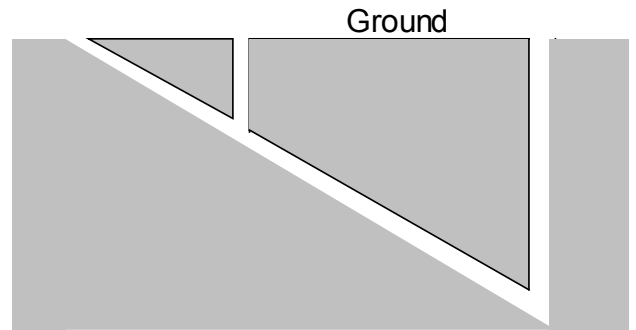
Calculate the length of the beam CD.

9. It is planned to build a warehouse 160 metres from a park. The warehouse will be 20 metres high.  
The warehouse is to be hidden from the park by planting trees which will grow to a height of 15 metres, as shown.



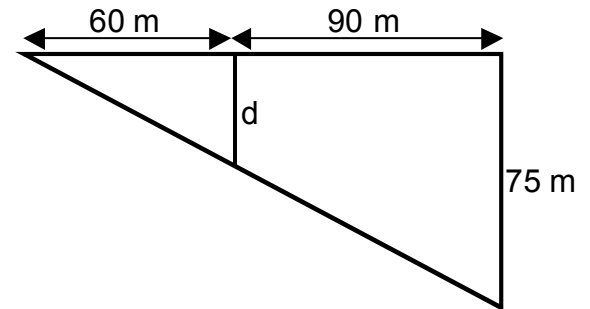
How far from the park should the trees be planted?

10. A company mining for gold sink three mine shafts into the ground. Two of the shafts are vertical and the third is sloping to allow for removal of the gold by train.



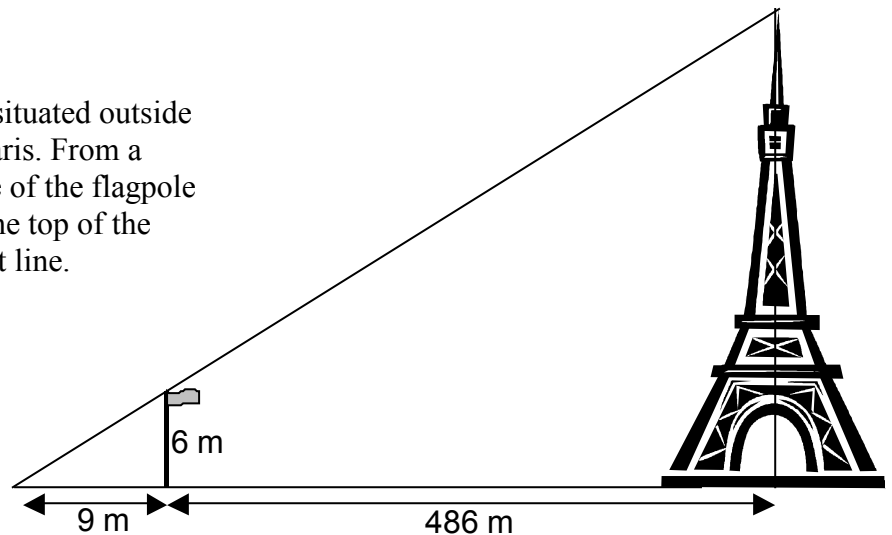
The diagram opposite shows the measurements involved.

Calculate the depth,  $d$ , of the shorter mine shaft.



11. A flagpole 6 metres high is situated outside the Trocadero building in Paris. From a point 9 metres from the base of the flagpole the top of the flagpole and the top of the Eiffel Tower are in a straight line.

Use the information in the diagram to calculate the height of the Eiffel Tower.



12. The diagram shows a wooden ironing board.

The legs of the ironing board form a pair of similar triangles with measurements as shown.

Calculate  $d$ , the distance between the base of the legs.

