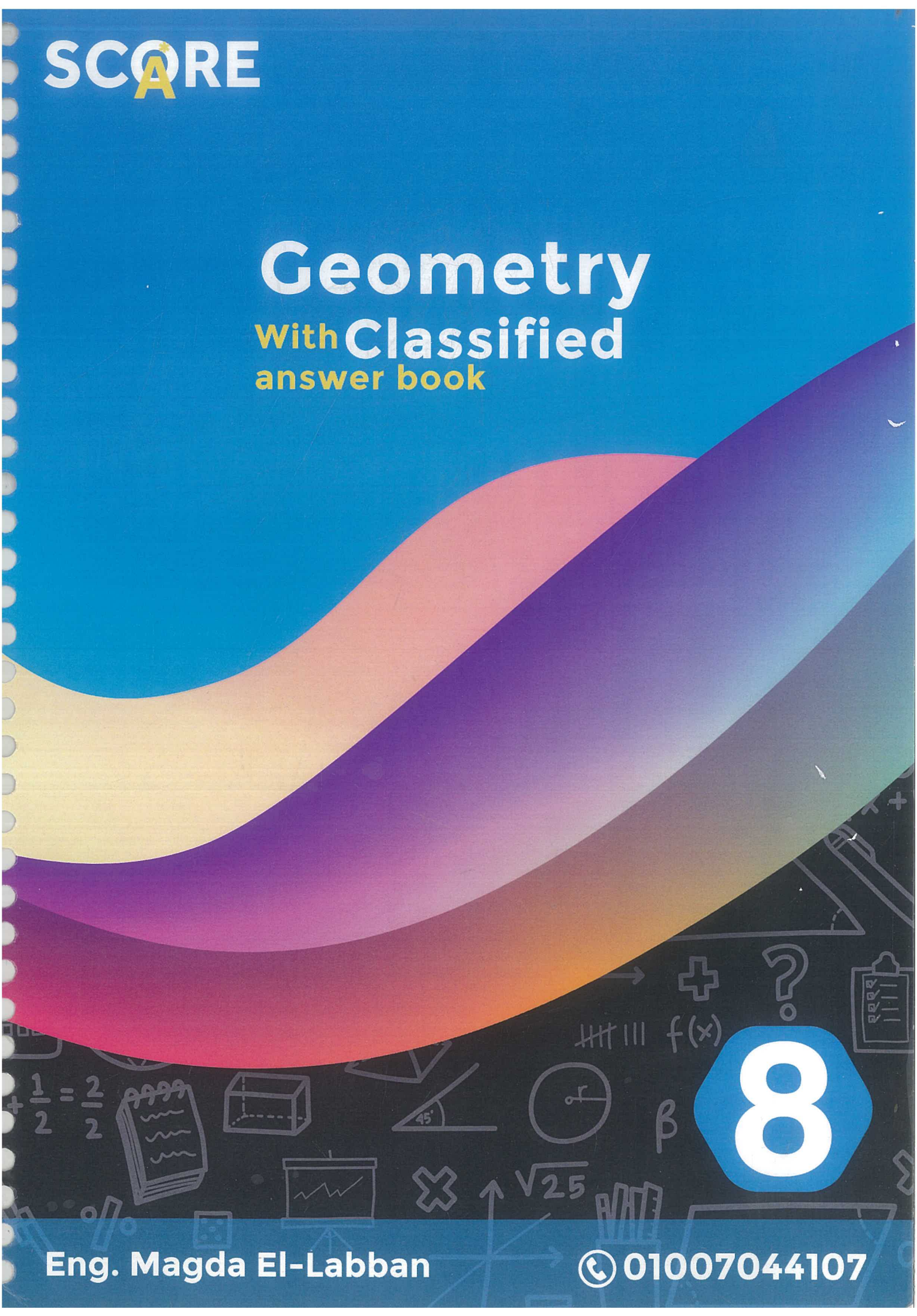
SCORE

Geometry

With Classified answer book



Eng. Magda El-Labban

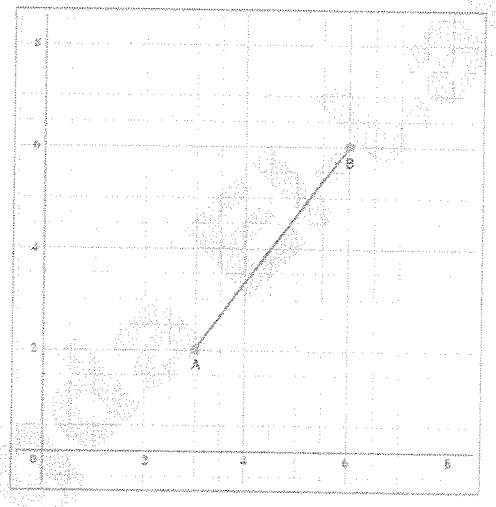
01007044107

23- Pythagoras therom

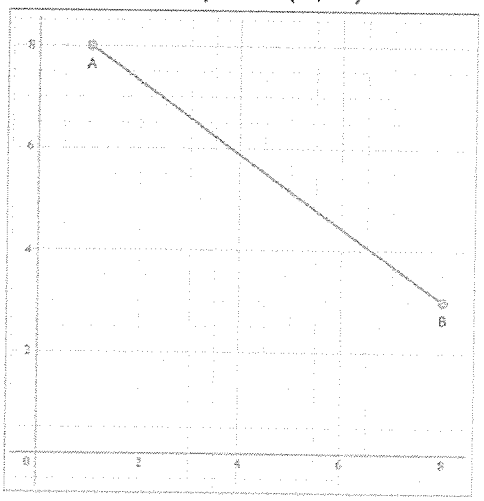
1. (a) A triangle has sides 12cm, 16cm and 20cm. Is the triangle a right-angled triangle? Give your reason.

(b) A triangle has sides 2.8cm, 4.5cm and 5.3cm. Is the triangle a right-angled triangle? Give your reason.

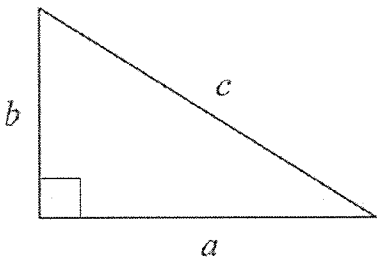
2. **(a)** A is the point (3, 2) and B is the point (6, 6). Find the length AB.

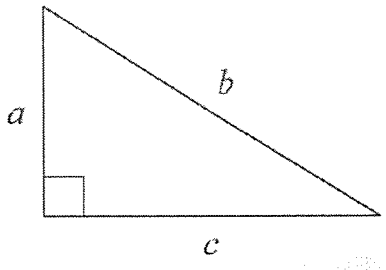


(b) A is the point (1, 8) and B is the point (8, 3). Find the length AB.



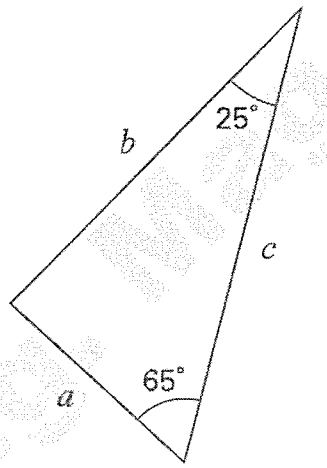
3. In which triangle below does $a^2 + b^2 = c^2$?
(a)Tick (✓) the correct triangle.

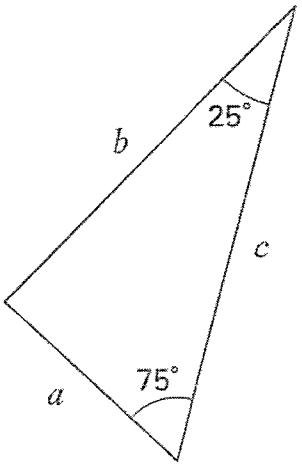




(b) For the **other** triangle, write an equation linking a, b and c

(c) In which triangle below does $a^2 + b^2 = c^2$?
Tick (✓) the correct triangle.



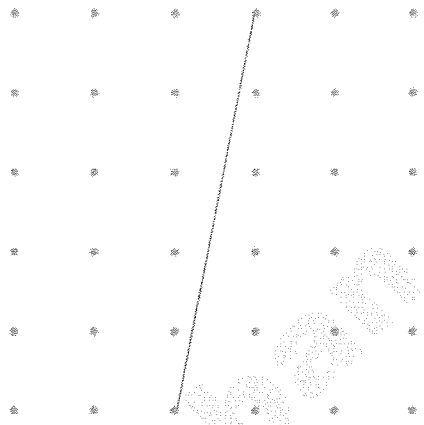


For the **other** triangle, explain why $a^2 + b^2$ does not equal c^2

4. The line shown is the hypotenuse of a right-angled triangle.

Complete the triangle.

How many possibilities can you find?

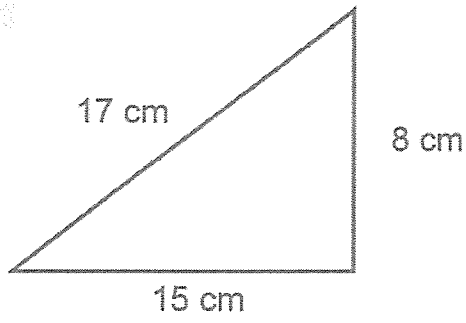


5. Show that this triangle contains a right angle.

If you increase the height of the triangle by 1 cm then it remains right-angled

Ron

Do you agree with Ron?



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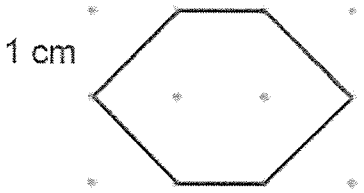
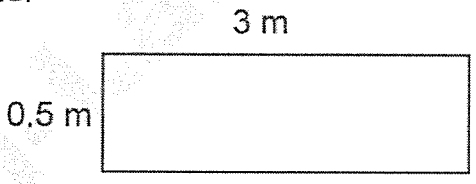
6. A hexagon is drawn on a centimetre square grid. Annie says that the perimeter of the hexagon is 6 cm. Explain why Annie is wrong.



7. Find the length of the diagonal of the rectangle. Give your answer to two decimal places.



8. A football pitch has a length of 100 m and a width of 70 m.

The diagonal length is 125 m.
Justify whether the pitch is rectangular or not.

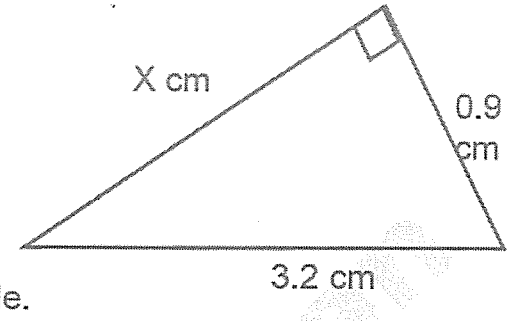
Elena Magda Education

9. Alen is calculating the missing length of the right-angled triangle

$$a^2 + b^2 = hyp^2$$

$$x^2 + 0.9^2 = 3.2^2$$

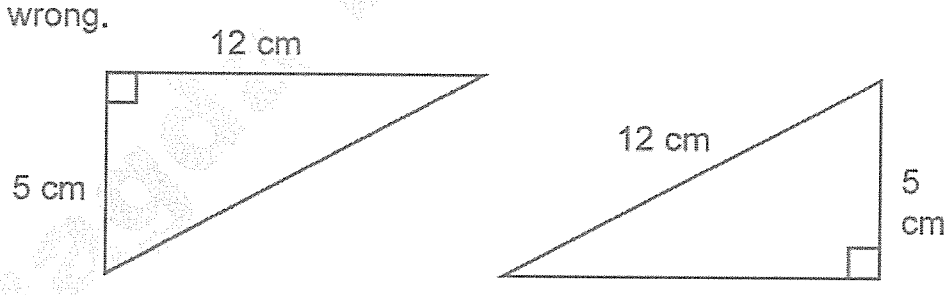
$$x^2 = 3.2^2 - 0.9^2$$



Complete Alen's working to find the missing side.

10. Anna says that the two triangles have the same perimeter.

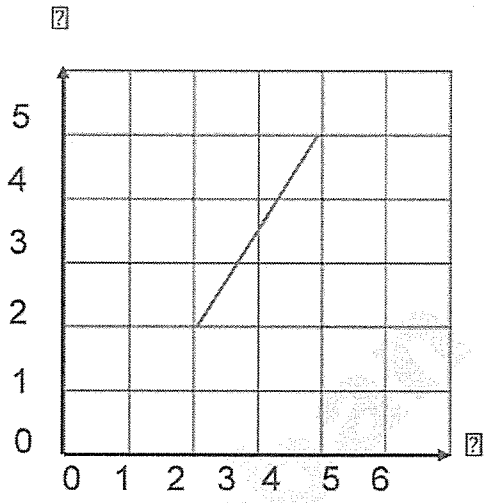
Show that Anna is wrong.



11. Who do you agree with? Why?

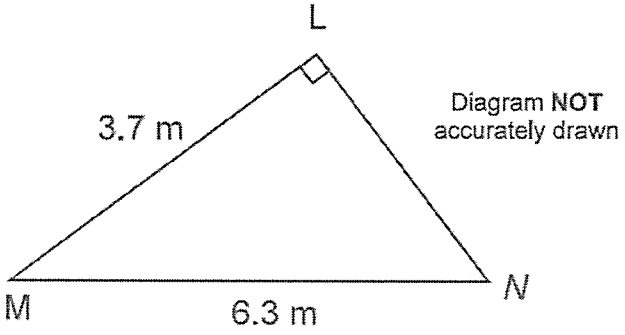
Rosie: I can use Pythagoras' theorem to find the length of the line segment.

Jack: You can't use Pythagoras' theorem as there is no right-angled triangle.



12. Angle MLN = 90°.
LM = 3.7 m. MN= 6.3 m.

Work out the length of LN. Give your answer correct to 3 significant figures.



13.

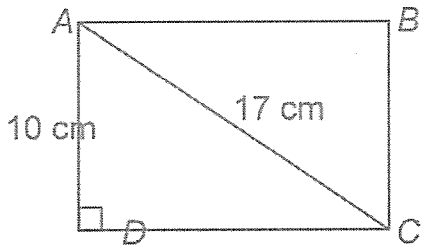


Diagram **NOT** accurately drawn

Calculate the length of the side *CD*.
Give your answer correct to one decimal place.

..... cm

14. A ladder is 6 m long.
The ladder is placed on horizontal ground, resting against a vertical wall.

The instructions for using the ladder say that the bottom of the ladder must **not** be closer than 1.5 m from the bottom of the wall.

How far up the wall can the ladder reach?
Give your answer correct to 1 decimal place.

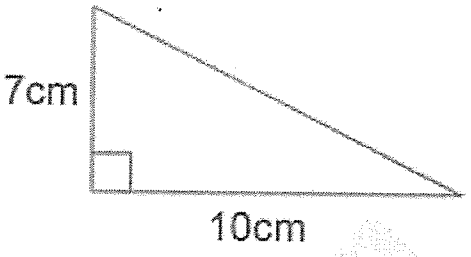
..... m

..... km

15. Shown is a right-angled triangle.

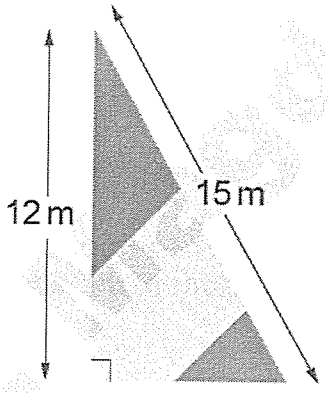
Work out the perimeter of the triangle

Not drawn accurately



..... cm

16. Here is a boat's sail in the shape of a right angled triangle.

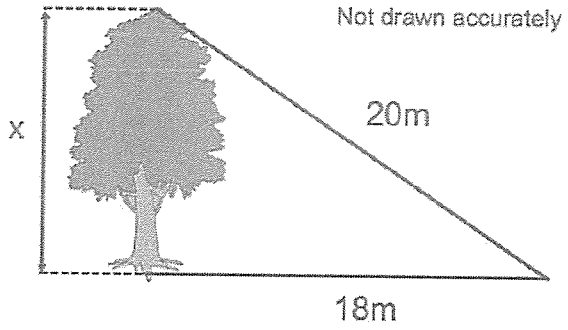


NOT TO SCALE

Work out the **total** distance around the outside of the sail.

.....cm.....m.[2]

17..

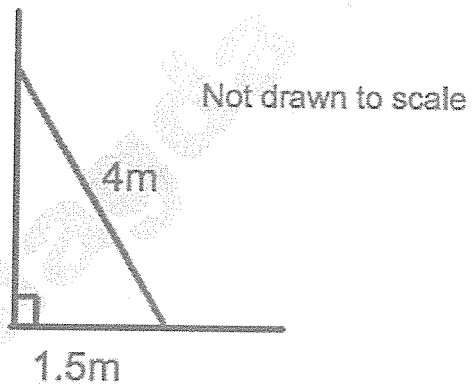


The distance from a point on the ground to the base of a tree is 18 metres. The distance from a point on the ground to the top of a tree is 20 metres.

Calculate the height of the tree.
Give the answer correct to 1 decimal place.

..... m

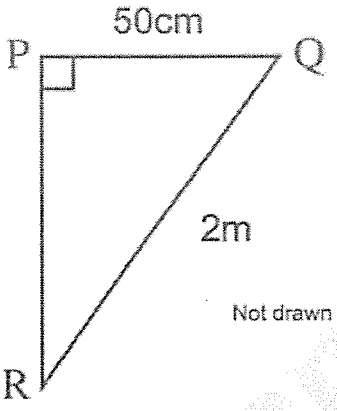
18.



A 4 metre ladder is placed against a vertical wall.
The base of the ladder is 1.5 metres from the base of the wall.

Work out how far the ladder reaches up the wall.

19. PQR is a right-angled triangle.



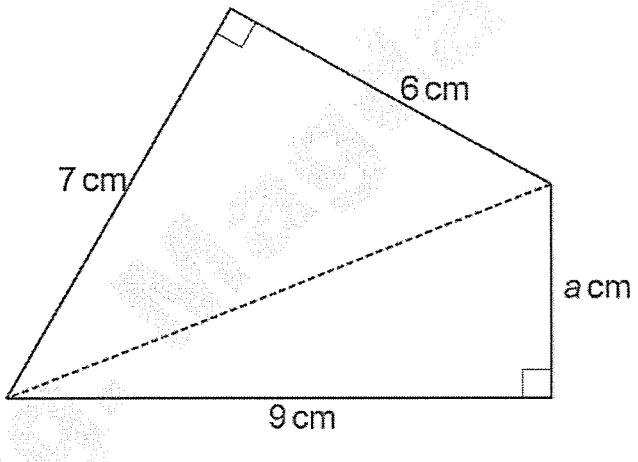
Not drawn accurately

PQ is 50cm
QR is 2m

Calculate the length of PR.
Give your answer in metres, correct to 1 decimal place.

..... m

20. The diagram shows a quadrilateral containing two right angles.



NOT TO SCALE

Calculate the value of *a*.

a = ...

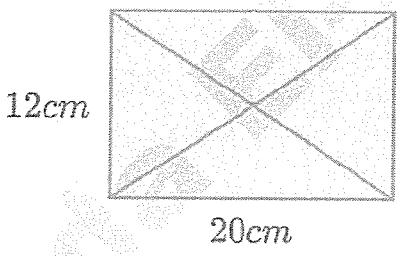
21. Triangle ABC has a perimeter 17cm.
AB = 4cm BC = 6cm

By calculation, deduce whether triangle ABC is a right-angled triangle.

22. A frame is made from wire.

The frame is in the shape of a rectangle 12 cm by 20 cm.

The diagonal of the rectangle is also made from wire.



Calculate the total length of wire needed to make the frame and the diagonals.
Give your answer correct to 1 decimal place.