



JP Maths

Revision



Attempt the paper
before watching the
solutions!

[https://www.youtube.com/
@JPMathsRevision](https://www.youtube.com/@JPMathsRevision)



FOUNDATION / HIGHER TIER

Pythagoras



INSTRUCTIONS

- Use **black ink** or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.



INFORMATION

- The marks for **each** question are shown in brackets– *use this as a guide as to how much time to spend on each question.*



ADVICE

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.



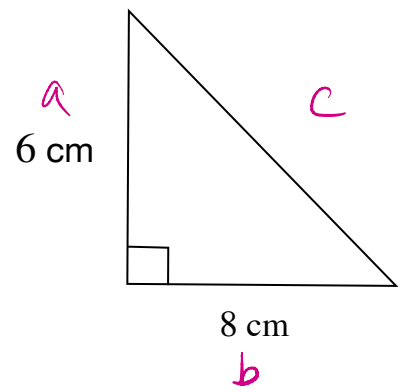
You've got this! ❤️

1. A right-angled triangle has sides of 6 cm and 8 cm.

Calculate the length of the hypotenuse.

$$c^2 = a^2 + b^2$$

$$c = \sqrt{6^2 + 8^2}$$
$$= \sqrt{100} = 10$$



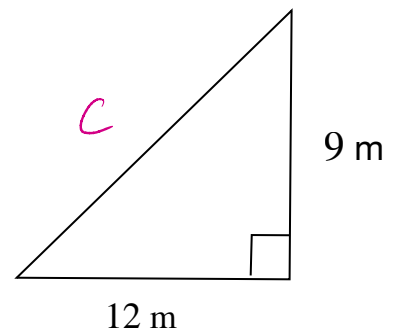
..... 10 cm

(Total for Question 1 is 2 marks)

2. A right-angled triangle has sides of 9 m and 12 m.

Calculate the length of the hypotenuse.

$$c = \sqrt{9^2 + 12^2}$$
$$= \sqrt{81 + 144}$$
$$= \sqrt{225} = 15$$



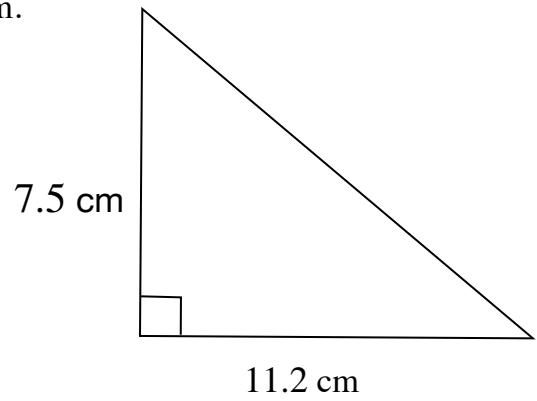
..... 15 m

(Total for Question 2 is 2 marks)

3. A right-angled triangle has sides of 7.5 cm and 11.2 cm.

Calculate the length of the hypotenuse.

Give your answer to 1 decimal place.



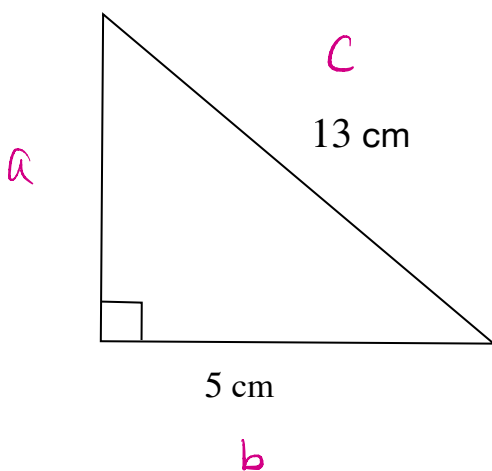
$$\sqrt{(7.5)^2 + (11.2)^2}$$
$$= 13.5$$

13.5 cm

(Total for Question 3 is 2 marks)

4. A right-angled triangle has a hypotenuse of 13 cm and one other side of 5 cm.

Calculate the missing side.



$$a^2 + b^2 = c^2$$
$$a^2 = c^2 - b^2$$
$$a = \sqrt{13^2 - 5^2}$$
$$= 12$$

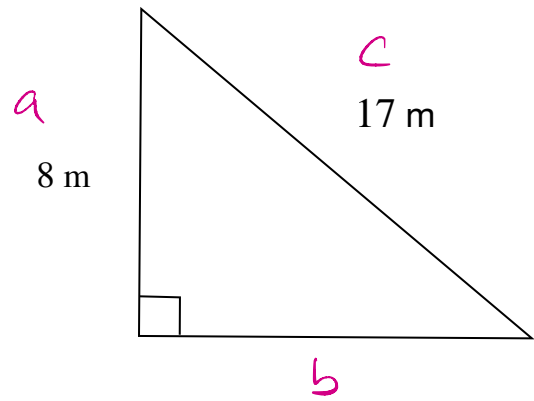
12 cm

(Total for Question 4 is 2 marks)

5. A right-angled triangle has a hypotenuse of 17 m and one other side of 8 m.

Calculate the missing side.

$$b = \sqrt{17^2 - 8^2}$$
$$= 15$$



15 m

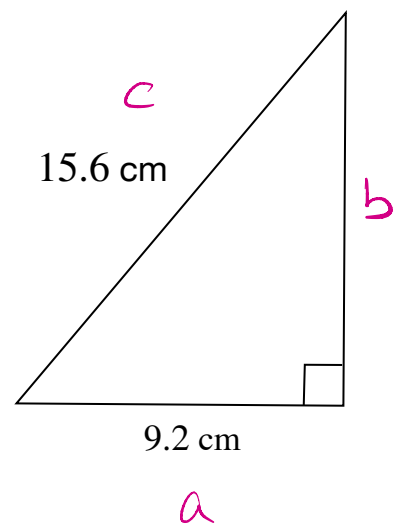
(Total for Question 5 is 2 marks)

6. A right-angled triangle has a hypotenuse of 15.6 cm and one other side of 9.2 cm.

Calculate the missing side.

Give your answer to 1 decimal place.

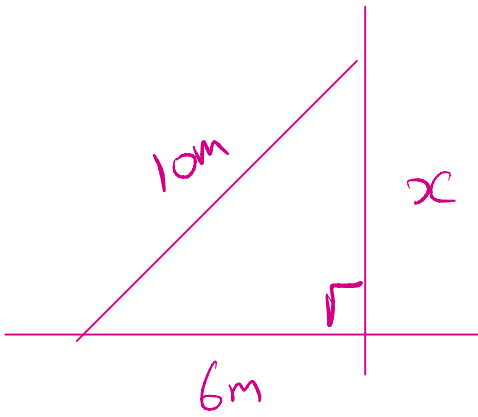
$$b = \sqrt{(15.6)^2 - (9.2)^2}$$
$$= 12.6$$



12.6 cm

(Total for Question 6 is 2 marks)

7. A ladder is leaning against a wall.
The ladder is 10 m long.
The foot of the ladder is 6 m from the wall.
How high up the wall does the ladder reach?

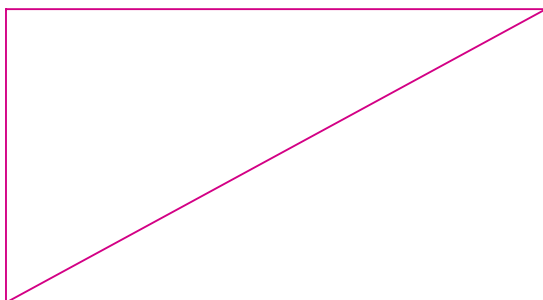


$$x = \sqrt{10^2 - 6^2}$$
$$= 8$$

8 m

.....
(Total for Question 7 is 2 marks)

8. A rectangle is 14 cm long and 9 cm wide.
Calculate the length of the diagonal.



$$\sqrt{14^2 + 9^2}$$
$$= 16.6$$

14cm

9cm

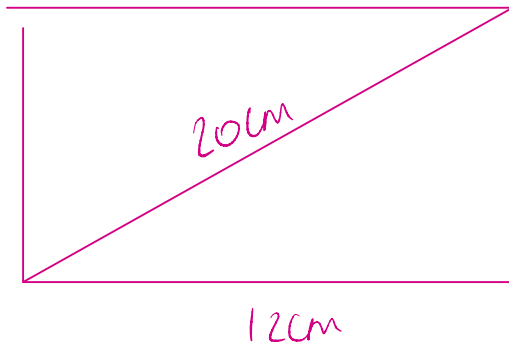
16.6 cm

.....
(Total for Question 8 is 2 marks)

9. A rectangle has a diagonal of 20 cm.

Its width is 12 cm.

Calculate the length of the rectangle.



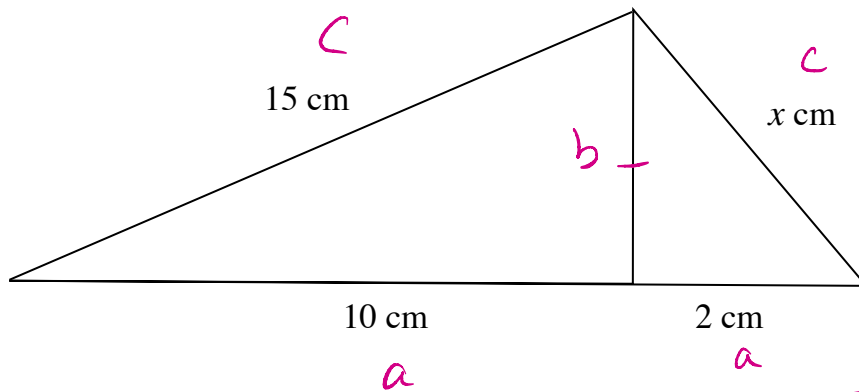
$$\sqrt{20^2 - 12^2} = 16$$

16 cm

(Total for Question 9 is 2 marks)

10. A shape is made from two right-angled triangles joined together.

Calculate the length of the side marked x .



$$b = \sqrt{15^2 - 10^2} = 11.8$$

$$c = \sqrt{11.8^2 + 2^2} = 11.4$$

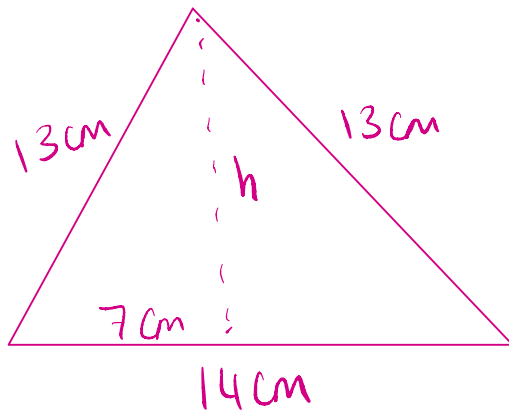
11.4 cm

(Total for Question 10 is 3 marks)

11. A triangle has a base of 14 cm.

The two equal sloping sides are each 13 cm.

Calculate the area of the triangle.



$$h = \sqrt{13^2 - 7^2}$$
$$= 10.954$$

$$\text{Area} = \frac{14 \times 10.954}{2}$$
$$= 76.7$$

$$76.7 \text{ cm}^2$$

.....
(Total for Question 11 is 3 marks)
