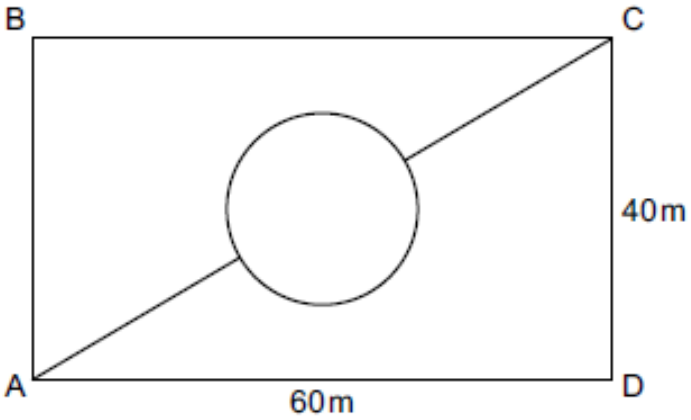
Pythagoras' Theorem (F)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.

Name:	
Total Marks:	

1. The rectangle ABCD represents a park.



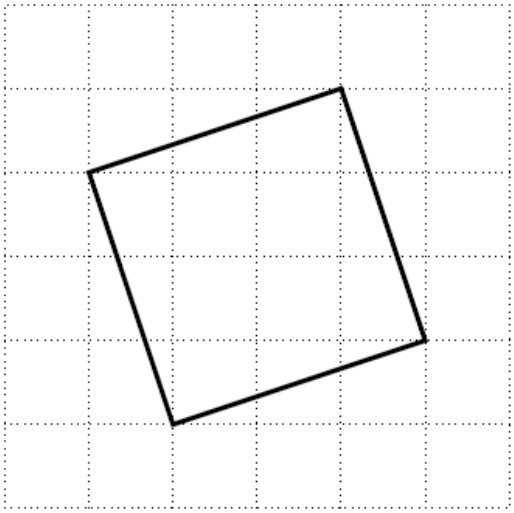
The lines show all the paths in the park.

The circular path is in the centre of the rectangle and has a diameter of 10m.

Calculate the shortest distance from A to C across the park, using only the paths shown.

..... m [6]

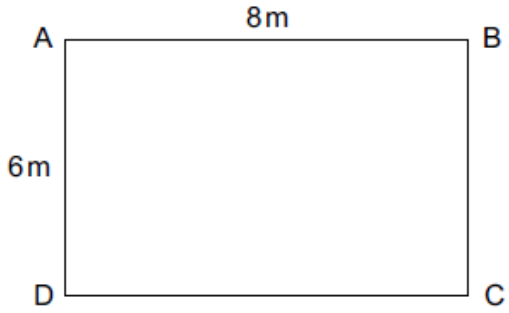
2. This square is drawn on a one-centimetre square grid.



Work out the area of the square.

..... cm^2 [3]

3. ABCD is a rectangle.



Not to scale

(a) Sunita calculates the length of AC, but gets it wrong.

$$8^2 - 6^2 = AC^2$$

$$\sqrt{28} = AC$$

$$\sqrt{28} = 5.29 \text{ or } -5.29$$

$$AC = 5.29$$

Explain what Sunita has done wrong.

[1]

(b) Calculate the length of AC.

..... m [2]

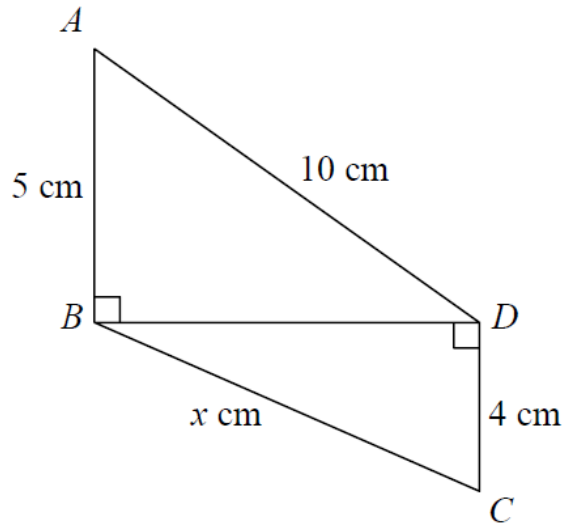
4. A triangle has sides of length 23.8 cm, 31.2 cm and 39.6 cm.

   Is this a right-angled triangle?

   Show how you decide.

[4]

5. Triangles ABD and BCD are right-angled triangles.



Work out the value of x.

Give your answer correct to 2 decimal places.

..... [4]

6. Triangle ABC has perimeter 20 cm.

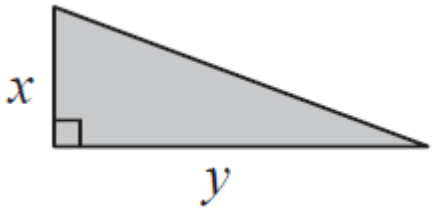
AB = 7 cm.

BC = 4 cm.

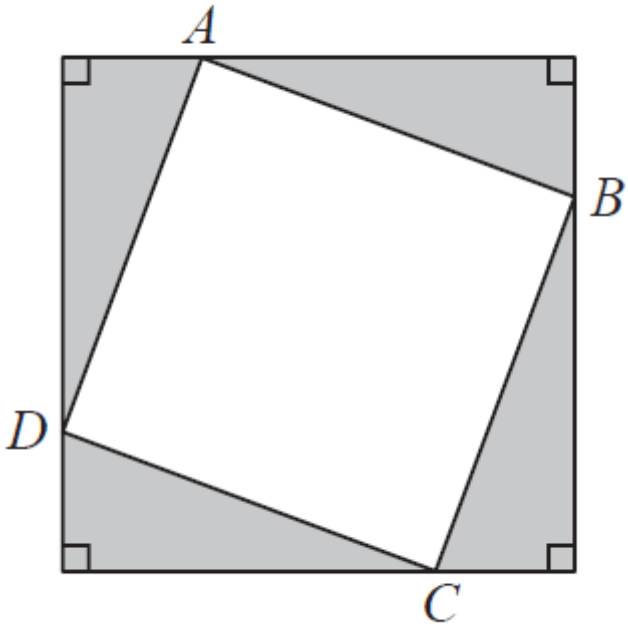
By calculation, deduce whether triangle ABC is a right-angled triangle.

[4]

7. Here is a right-angled triangle.



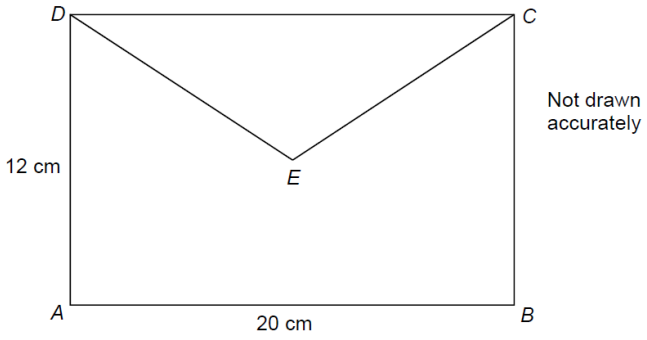
Four of these triangles are joined to enclose the square *ABCD* as shown below.



Show that the area of the square *ABCD* is $x^2 + y^2$

[3]

8. E is the centre of rectangle ABCD.

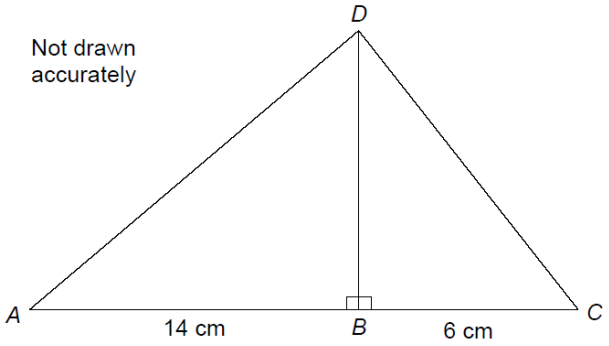


Work out the length DE.

[3]

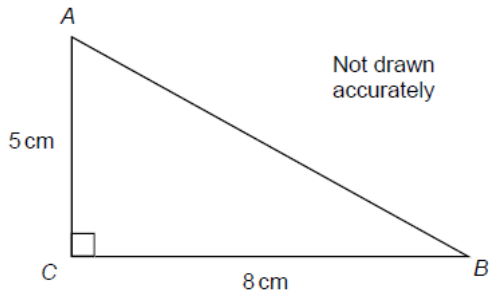
9. In the diagram the area of triangle ABD is 56 cm^2

Work out the length of CD.



[4]

10. How long is side AB?



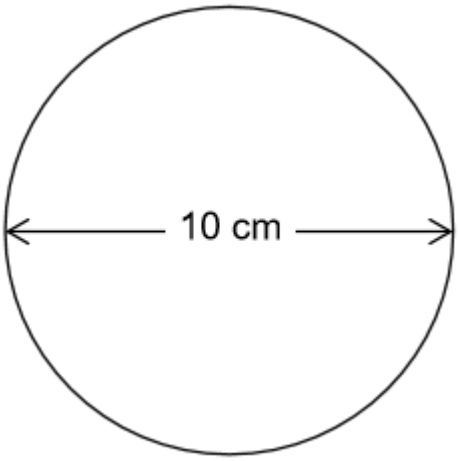
Tick a box.

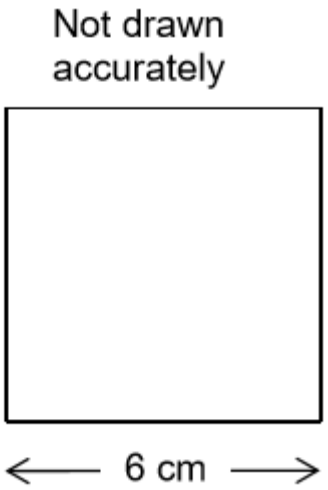
Between 5 cm and 8 cm	☐	8 cm	☐
Between 8 cm and 13 cm	☐	More than 13 cm	☐

[1]

11. A circle has diameter 10 cm

A square has side length 6 cm





Use Pythagoras' theorem to show that the square will fit inside the circle without touching the edge of the circle.

[3]

CREDITS AND NOTES

Question	Awarding Body	Question	Awarding Body
1	OCR		
2	OCR		
3	OCR		
4	OCR		
5	Pearson Edexcel		
6	Pearson Edexcel		
7	Pearson Edexcel		
8	AQA		
9	AQA		
10	AQA		
11	AQA		

Notes:

These questions have been retyped from the original sample/specimen assessment materials and whilst every effort has been made to ensure there are no errors, any that do appear are mine and not the exam board s (similarly any errors I have corrected from the originals are also my corrections and not theirs!).

Please also note that the layout in terms of fonts, answer lines and space given to each question does not reflect the actual papers to save space.

These questions have been collated by me as the basis for a GCSE working party set up by the GLOW maths hub - if you want to get involved please get in touch. The objective is to provide support to fellow teachers and to give you a flavour of how different topics "could" be examined. They should not be used to form a decision as to which board to use. There is no guarantee that a topic will or won't appear in the "live" papers from a specific exam board or that examination of a topic will be as shown in these questions.

Links:

AQA http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300

OCR http://ocr.org.uk/gcsemaths

Pearson Edexcel http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html

WJEC Eduqas http://www.eduqas.co.uk/qualifications/mathematics/gcse/

Contents:

This version contains questions from:

AQA – Sample Assessment Material, Practice set 1 and Practice set 2

OCR – Sample Assessment Material and Practice set 1

Pearson Edexcel – Sample Assessment Material, Specimen set 1 and Specimen set 2

WJEC Eduqas – Sample Assessment Material