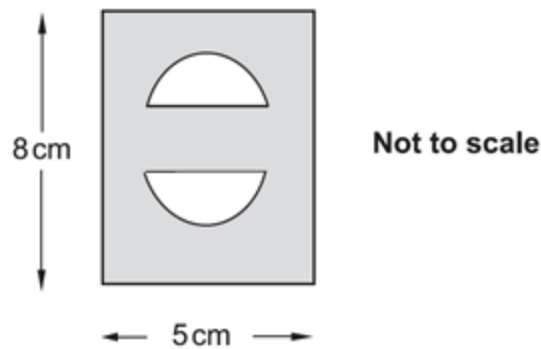# Circles

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

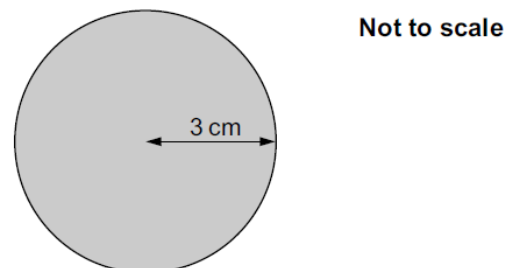| Name:	
Total Marks:	

1. Jo makes a pendant. She cuts two semicircles of radius 1 cm from the rectangle, as shown below.

8 cm

5 cm

Not to scale

Show that the shaded area is 36.9 cm² correct to three significant figures.

[4]

2. This is a circle with radius 3 cm.

Not to scale

3 cm

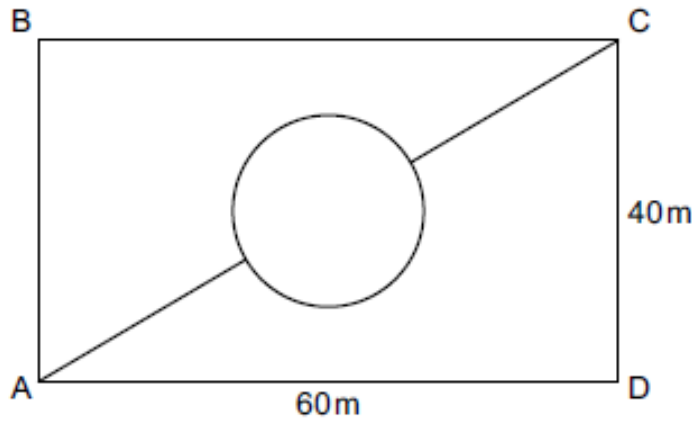Work out the area of the circle.

Give your answer in terms of π.

.... cm² [2]

3. The rectangle ABCD represents a park.
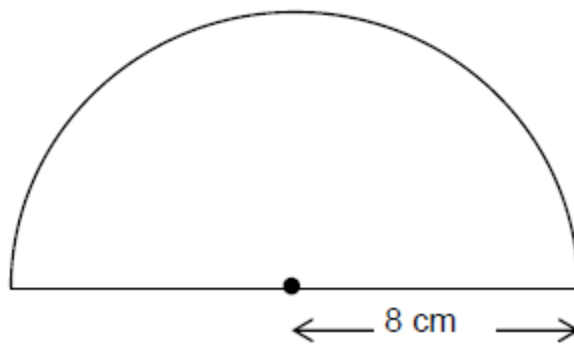

Not to scale

40m

60m

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]

4. The diagram shows a semicircle of radius 8 cm

Not drawn accurately

8 cm

Work out the area of the semicircle.

Give your answer in terms of π.

[2]

5. Eliza makes this sketch of a pond.

Diagram not drawn to scale

Diagram not drawn to scale

The shortest distance across the pond is 6m.

The longest distance across the pond is 20m.

Eliza estimates that the surface area of the pond is 120m².

(a) Explain how Eliza arrived at her estimate.

[2]

(b) Calculate an estimate for the surface area of the pond that would be more accurate than Eliza's estimate.
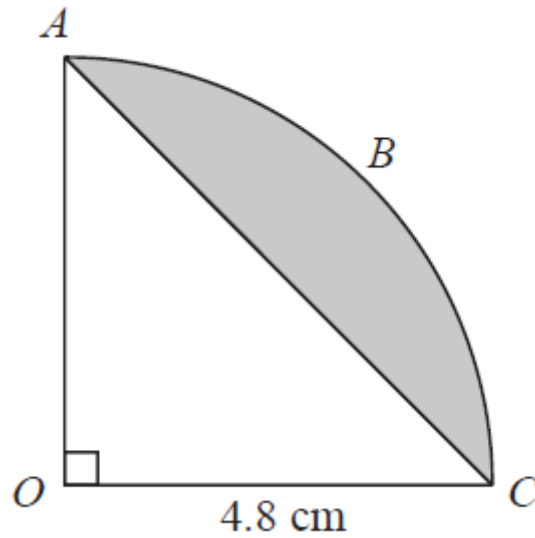
Explain how you have decided to calculate your estimate.

You must justify your decision.

Show all of your working.

[5]

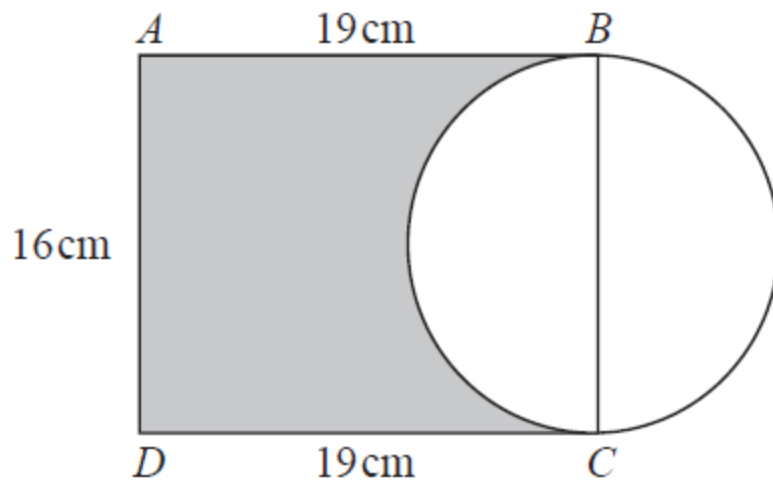6. The arc ABC is a quarter of a circle with centre O and radius 4.8 cm.

AC is a chord of the circle.

Work out the area of the shaded segment.

Give your answer correct to 3 significant figures.

[3]

7. Here is a diagram showing a rectangle, ABCD, and a circle.

BC is a diameter of the circle.

Calculate the percentage of the area of the rectangle that is shaded.

Give your answer correct to 1 decimal place.

....% [4]

CREDITS AND NOTES

Question	Awarding Body
1	OCR
2	OCR
3	OCR
4	AQA
5	WJEC Eduqas
6	Pearson Edexcel
7	Pearson Edexcel

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 and Practice set 1

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