Learning Objectives

◊ To know the parts of a circle

◊ To round to 2dp

◊ To understand π

◊ To accurately use a calculator.

◊ To understand the link between radius and diameter.

◊ To calculate using the circumference rule

◊ To calculate using the area rule

◊ To find arc lengths

◊ To find the area of sectors

◊ To solve problems involving circles

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What if you get stuck?

◊ Ask a friend

◊ Ask your teacher

◊ Use the library

Websites

GCSE Bitesize

Mathsisfun.com

(QRcode below)

Resources

Textbooks

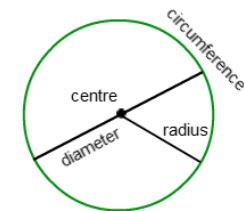Mathematical dictionary

Exercise book

Planner

Equipment

Pencil

Ruler

Compasses

Calculator

Takeaway Maths

Area & circumference of circles

Due in:

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Rules

You must spend a minimum of £10.

Image Credit: http://calculator.mathcaptain.com/
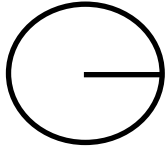
Starter

You must show your working out for each question. Answer to 2dp.

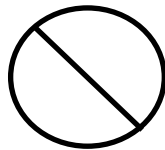### 1. Radius Calculation   £1.50

Find the area and circumference of this circle, with radius 6cm.

2. Diameter Calculation   £1.50

Find the area and circumference of this circle, with diameter 8cm.

3. Radius calculation 2   £2.00

Find the area and circumference of this semi-circle, with radius 10cm.

4. Diameter calculation 2   £2.20

Find the area and circumference of this semi-circle, with diameter 14cm.

Main Course

Show your working and answer to 2dp where appropriate.
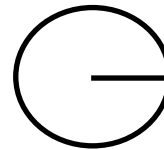
5. Arcs   £3.70

This sector a has radius 8cm and angle 30˚.
What is the perimeter and area?

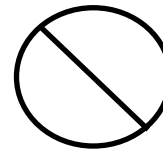### 6. Radius 3   £3.00

This circle has a circumference of 25cm. What is the radius?

7. Diameter 3   £3.00

This circle has an area of 30cm². What is the diameter?

8. Revision   £3.50

Design a revision poster based on area and circumference of circles. You should include examples and problems.

Side Order: +50p

Include how to calculate arc lengths in sectors

Dessert

You can demonstrate your problem solving skills with a more challenging dessert. Answer to 2dp.

9. Garden design   £4.80

A rectangular garden measures 10m by 7m. There is a circular flowerbed with a diameter of 120cm and a circular pond with a radius of o.9m. Everything else is lawn. What area is covered in grass?
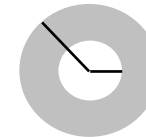
10. Washer question   £4.50

A metal washer has internal radius 1cm and external radius 2cm. What is the area of the washer?

They are stamped out of a 1m square of metal. How many washers can you make?

How much metal is wasted?

11. Unicycle   £4.00

A unicycle has a wheel with a radius of 60cm. It travels 850m. How many complete revolutions does the wheel make?

12. Rainbow Maths   £5.00

A rainbow is being painted on a wall. It will be made out of perfect semi-circles. The bands in the rainbow are each 50cm wide. The gap in the middle has a diameter of 2m. What is the area of each colour?