M5

OCR RECOGNISING ACHIEVEMENT

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M5 – SECTION B

B275B

Monday 9 March 2009
Morning

Duration: 30 minutes

Candidate Forename		Candidate Surname	

Centre Number					Candidate Number				

INSTRUCTIONS TO CANDIDATES

* Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
* Use black ink. Pencil may be used for graphs and diagrams only.
* Read each question carefully and make sure that you know what you have to do before starting your answer.
* Show your working. Marks may be given for a correct method even if the answer is incorrect.
* Answer **all** the questions.
* Do **not** write in the bar codes.
* Write your answer to each question in the space provided, however additional paper may be used if necessary.

INFORMATION FOR CANDIDATES

* The number of marks is given in brackets **[ ]** at the end of each question or part question.
* Section B starts with question 8.
* You are expected to use a calculator in Section B of this paper.
* The total number of marks for this Section is **25**.
* This document consists of **8** pages. Any blank pages are indicated.

FOR EXAMINER'S USE
SECTION B	

OCR is an exempt Charity

Turn over

Formulae Sheet

Area of trapezium $= \frac{1}{2}(a+b)h$
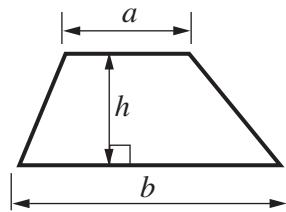
Volume of prism = (area of cross-section) × length
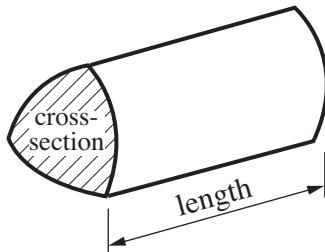
PLEASE DO NOT WRITE ON THIS PAGE

8

(a) Write down the coordinates of the point P.

(a) (............... , ...) **[1]**

(b) Plot the point (⁻3, 1).
Label your point X. **[1]**

(c) Triangle PQR has been rotated clockwise about (0, 0) to triangle STU.

What is the angle of this rotation?

(c) .... ° **[1]**

9 **(a)** Find the volume of this cuboid.

3 cm

2 cm

4 cm
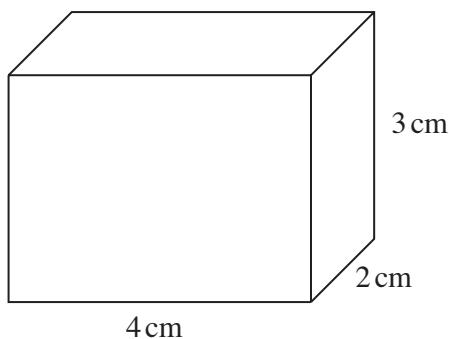
(a) .... cm^3 **[2]**

(b) Two of these cuboids have been joined to make each of these solids.

A

B
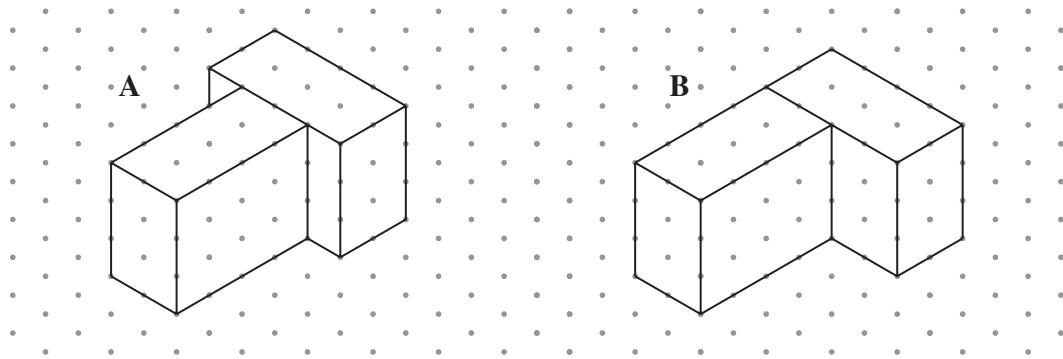
Which of these solids have reflection symmetry?

Ring the correct answer.
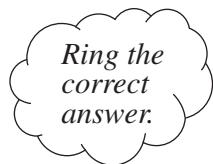
Only **A**

Only **B**

Both **A** and **B**

Neither **[1]**

10 (a) This is Jayne's homework.
The answer is wrong.

Solve this equation.

$6y = 3$

$y = 2$ ✗

Explain why the answer **cannot** be 2.

.... **[1]**

(b) This is Simon's homework.
He has also made a mistake.

Solve this equation.

$4c - 11 = 17$

$4c = 6$

$c = 1.5$ ✗

Put a ring around the first number that is wrong. **[1]**

(c) Solve the equation $2h + 7 = 12$.

$2h + 7 = 12$

(c) .... **[2]**

(d) Which of these equations is equivalent to $2x + 3 = 10$?
Put a tick (✓) next to the correct equation.

$x + 5 = 10$

$6x = 10$

$x + 1 + x + 2 = 10$

$5x = 10$ **[1]**

Turn over

11 (a) Salma asked all the pupils in her year group which of these they like best:

listening to music,
watching TV or
taking part in sport.

These pie charts show her results.

Results for **96 Girls**

Results for **85 Boys**
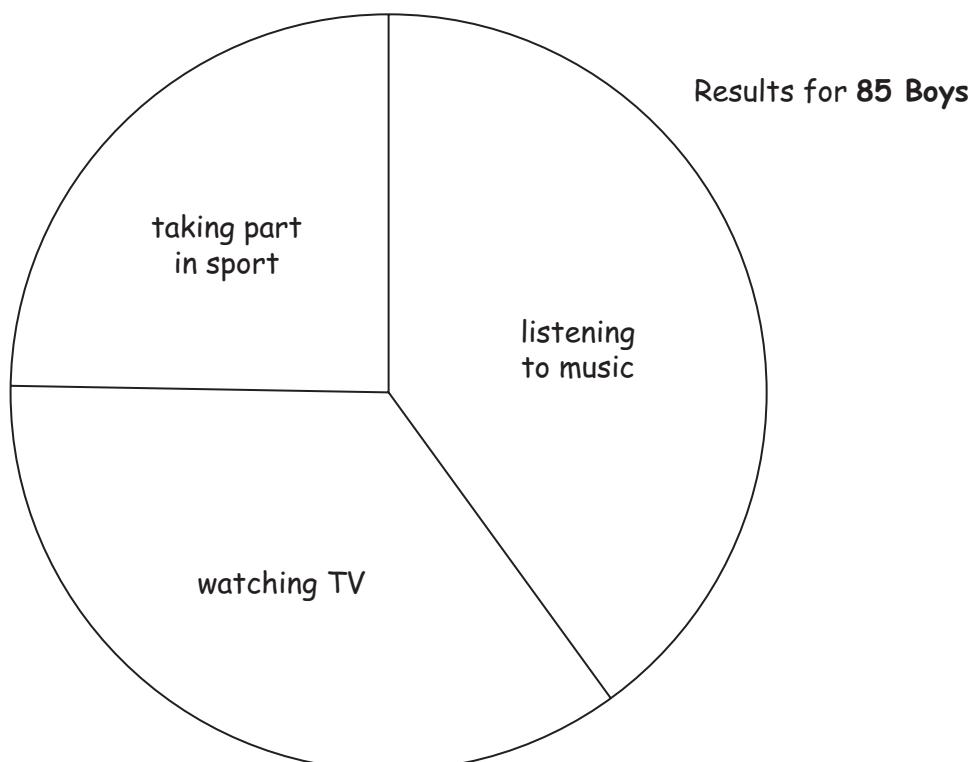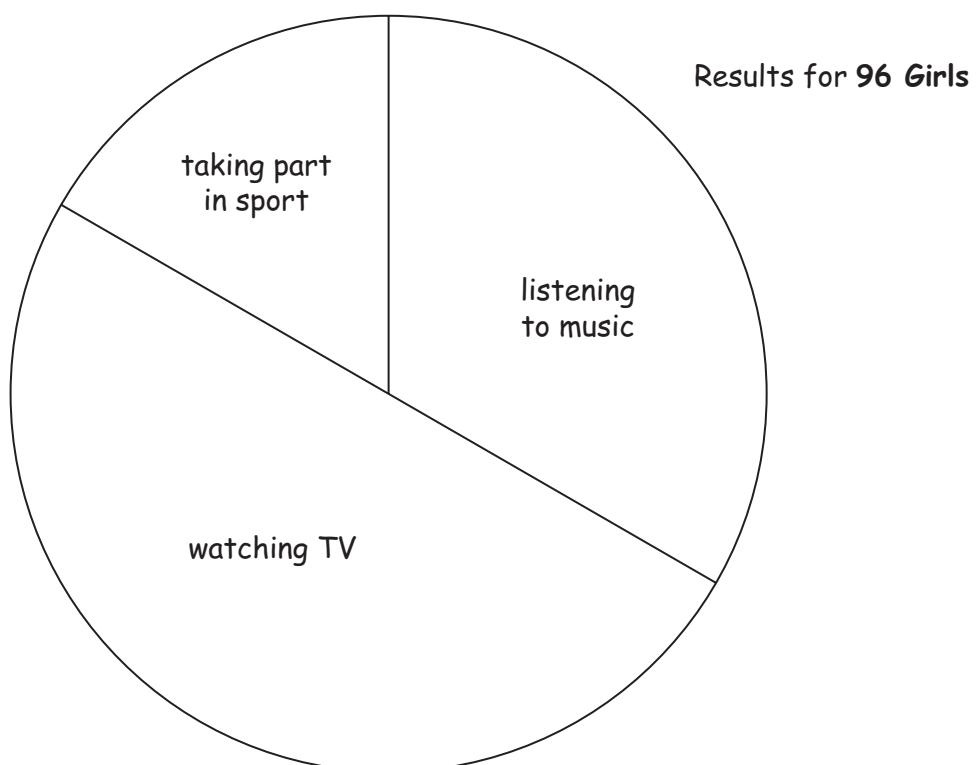
(i) How many of the 96 girls chose 'listening to music'?

(a)(i) .... **[2]**

(ii) How many of the 85 boys chose 'listening to music'?

(ii) .... **[2]**

(b) Salma asked her teachers how many hours they spend listening to CDs each week.
Here are her results.

| 4 | 16 | 3 | 2 | 3 | 35 | 19 | 8 | 3 | 32 |

(i) Work out the median number of hours.

(b)(i) .... **[2]**

(ii) Does the median give a fair idea of the number of hours?
Explain your answer.

*Write yes
or no.*
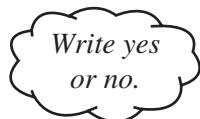
.... because ....

.... **[1]**

(c) Salma also asked her 10 teachers if they took part in sport every week.
30% said Yes, the rest said No.

How many of her teachers said No?

(c) .... **[2]**

TURN OVER FOR QUESTION 12

12 This is a map of part of Yorkshire.
The position of each town is shown by ■.
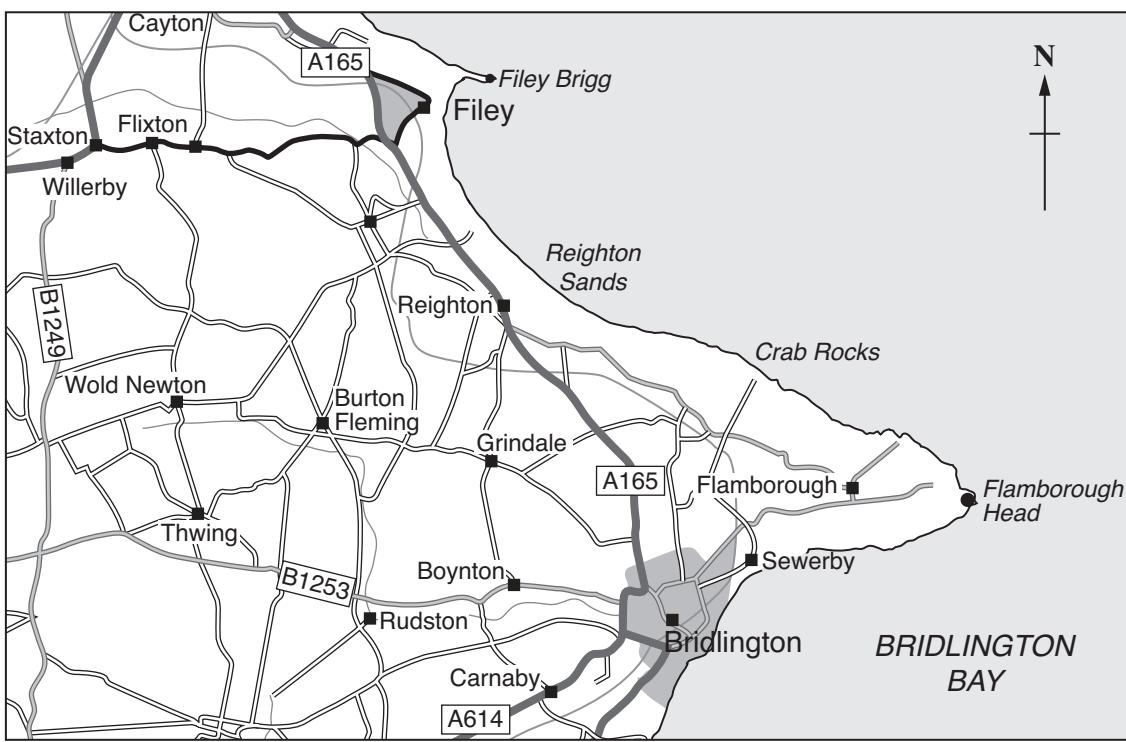
Scale: 1 cm to 2 km

(a) What is the bearing of Flamborough Head from Bridlington?

(a) ....° **[1]**

(b) George is cycling from Filey to Bridlington along the A165.

(i) Estimate the real distance from Filey to Bridlington.

(b)(i) .... km **[2]**

(ii) This formula gives the energy used on a cycle journey.

$$E = 33 \times D \div 2$$

where E = energy in joules
        D = distance in kilometres

Work out how much energy George uses for this journey.

(ii) .... joules **[2]**