OCR
RECOGNISING ACHIEVEMENT

F

Tuesday 11 June 2013 – Morning

GCSE MATHEMATICS A

A501/01 Unit A (Foundation Tier)

A516970613

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Scientific or graphical calculator
- Geometrical instruments
- Tracing paper (optional)

Duration: 1 hour

A501/01

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Your answers should be supported with appropriate working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

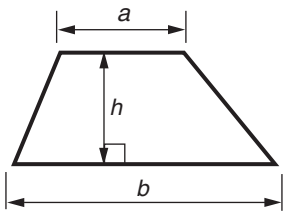
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- The total number of marks for this paper is **60**.
- This document consists of **16** pages. Any blank pages are indicated.

You are permitted to use a calculator for this paper

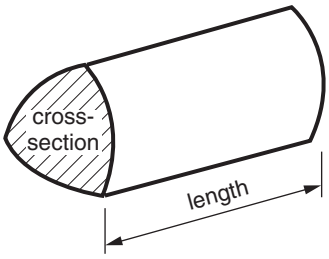
This paper has been pre modified for carrier language

Formulae Sheet: Foundation Tier

Area of trapezium = $\frac{1}{2}(a + b)h$



Volume of prism = (area of cross-section) × length



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1 **(a)** The first cathedral in London was finished in the year 604.

How many years ago was this?

(a) _____ **[2]**

(b) In 2010, the number of people who paid to visit St Paul's Cathedral was 810 939.

Write 810 939 correct to the nearest thousand.

(b) _____ **[1]**

(c) During the year 2010, the number of people who attended services at St Paul's Cathedral was 1.2 million.

How many people attended services **each week** on average?

(c) _____ **[2]**

(d) Use a metric unit from this list to complete the sentence.

centimetres	metres	millimetres	kilometres

The length of St Paul's Cathedral is 175 _____ . **[1]**

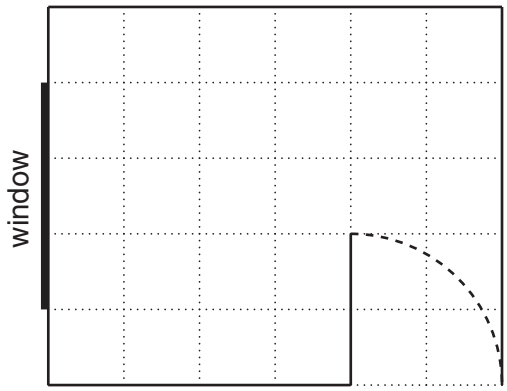
(e) The height of St Paul's Cathedral is 111 m.

Estimate this height in feet.

(e) _____ feet **[1]**

2 Colin and Jean are getting a bedroom ready for their grandchildren to use.

(a) The scale drawing shows the room seen from above.
It is drawn using the scale: 1 cm represents 50 cm.



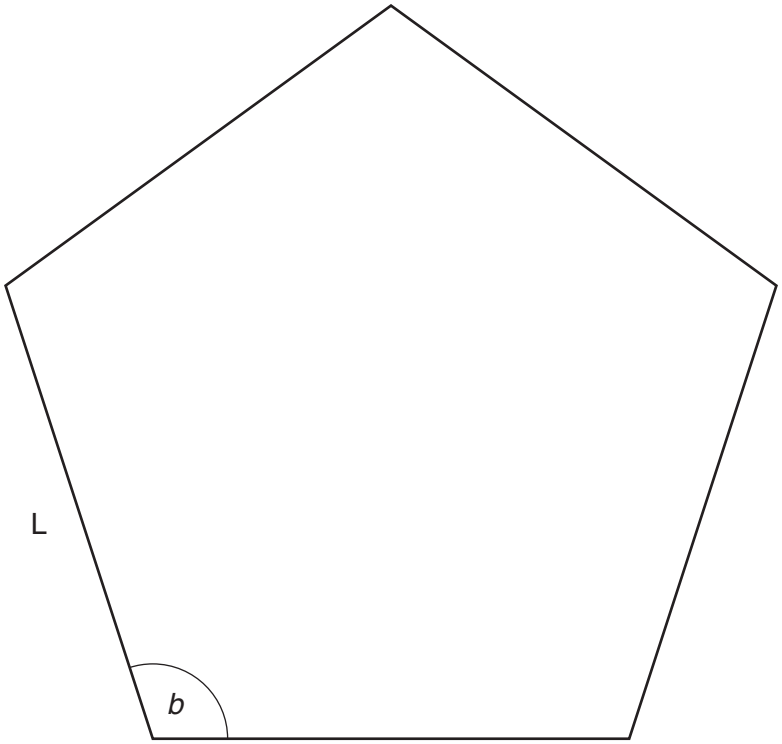
They need to put in the room:

- a bed 2 m long and 1 m wide
- a chest of drawers 1 m long and 50 cm wide
- a cot 140 cm long and 60 cm wide.

Draw these items in possible positions on the scale drawing. **[5]**

(b) Jean has made a decoration to hang above the cot.

Here is the shape she used for each face of the decoration.



(i) Measure angle *b*.

(b)(i) _____ ° **[1]**

(ii) Measure the length of side L.
Give the units of your answer.

(ii) _____ **[2]**

3 Tom has a joint of lamb to cook.
It weighs 2.5 kg.

Here are the cooking instructions.

> Cook the joint in the oven at 190°C, allowing 25 minutes for each 500 g.
> Then take it out of the oven and let it rest for 10 minutes before carving.

Tom wants to start carving the joint at 1 pm.

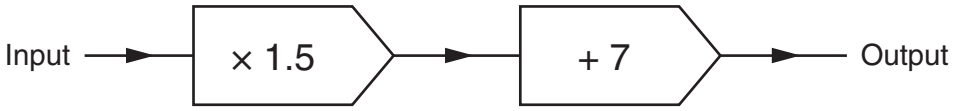
At what time should he start to cook the joint?

_____ **[4]**

4 **(a)** Calculate $\sqrt{59}$.
Give your answer correct to 1 decimal place.

(a) _____ **[2]**

(b) Here is a number machine.



(i) Calculate the output when the input is 10.

(b)(i) _____ **[1]**

(ii) Calculate the **input** when the output is 37.

(ii) _____ **[2]**

5 Here are the first five terms of three number patterns.

Pattern A: 3 6 9 12 15 ...

Pattern B: 3 7 11 15 19 ...

Pattern C: 22 17 12 7 2 ...

(a) What is the special name for pattern A?

_____ **[1]**

(b) Write down a square number from pattern A.

(b) _____ **[1]**

(c) The first five terms of pattern B are all odd numbers.

Are **all** the terms of pattern B odd?
Explain how you can tell.

_____ because _____

_____ **[1]**

(d) Write down a prime number from the first five terms in pattern C.

(d) _____ **[1]**

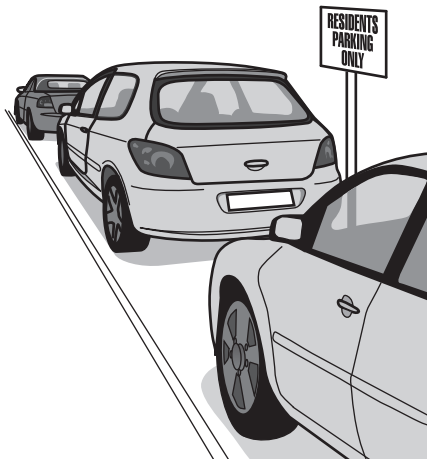
(e) Write down the sixth term in pattern C.

(e) _____ **[1]**

6 A street has a parking bay for the residents' cars. The bay is 24 m long.

Here is a list of the residents and the lengths of their cars.

Resident	Length of car (m)
Jan	3.9
Paula	3.7
Ravi	4.5
Sumita	4.2
Steve	3.4



To drive cars in and out of the bay there needs to be a 1.2 m space between cars.

Show whether or not the residents can fit all their cars in the bay at the same time so that they can drive them out. **[4]**

7 **(a)** Simplify fully.

$3a + 2 + 5a - 3$

(a) _____ **[2]**

(b) Solve.

(i) $y - 5 = 4$

(b)(i) _____ **[1]**

(ii) $3x + 5 = 26$

(ii) _____ **[2]**

(c) Find the value of $c^2 + 5c$ when $c = -3$.

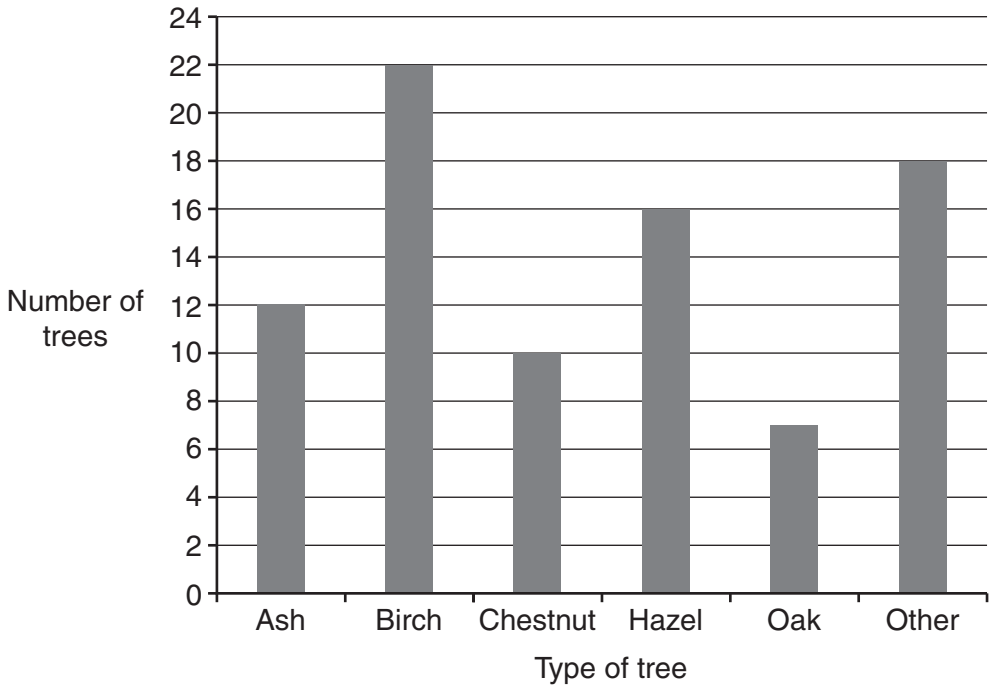
(c) _____ **[2]**

8 Judith is cutting her hedge.
The hedge is 12 m long.
When she has cut 2 m of hedge, she has filled 2.5 garden bags with the cuttings.
Judith stops when she has filled 6 garden bags altogether.

What length of hedge does she have left to cut?

_____ m **[4]**

9 **(a)** This bar graph shows how many trees of different types there are in Benton Wood.



(i) How many hazel trees are there?

(a)(i) _____ **[1]**

(ii) How many **more** birch trees than oak trees are there?

(ii) _____ **[2]**

(b) Josh is designing a survey about the trees people have in their gardens.

Complete this part of the survey by adding suitable response boxes for this question.

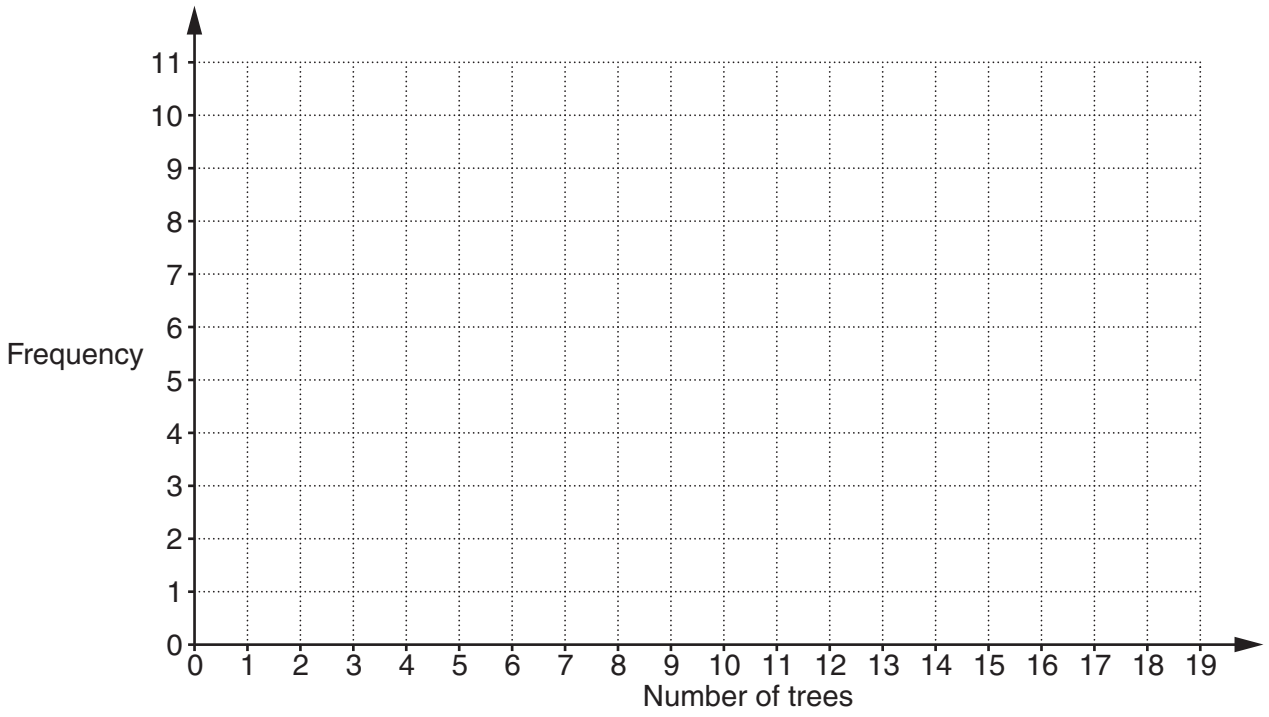
What is the height of the tallest tree in your garden?

[2]

(c) This table summarises the number of trees in the gardens of the 25 houses in Brackley Close.

Number of trees	Frequency
0 – 4	7
5 – 9	10
10 – 14	6
15 – 19	2

(i) Draw a frequency polygon to represent this information.



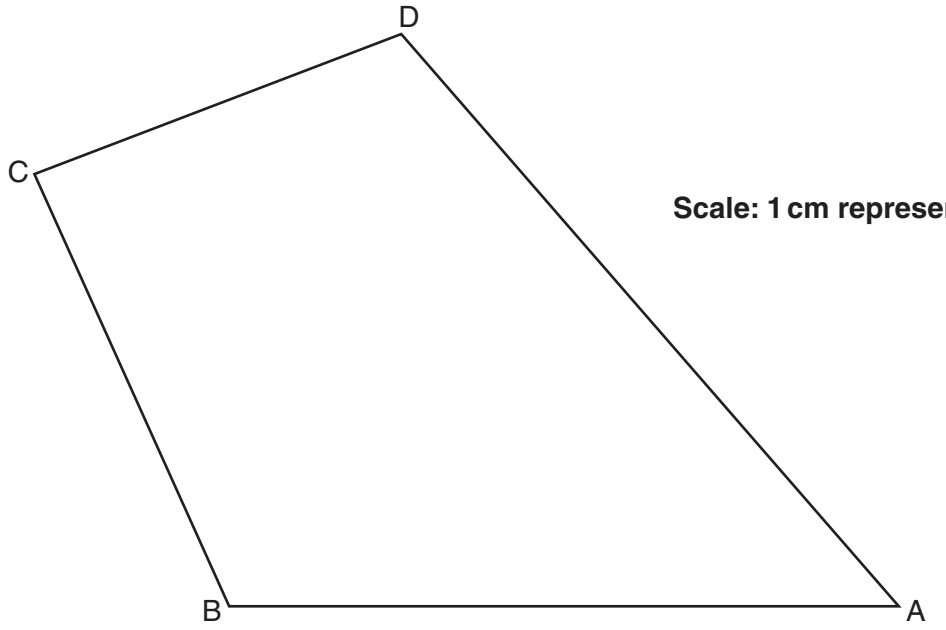
[3]

(ii) Calculate an estimate of the mean number of trees in a garden in Brackley Close.

(c)(ii) _____ **[4]**

10 *In this question, use a ruler and a pair of compasses.*
Leave in your construction lines.

The scale drawing ABCD shows Sam's garden.
BA is the wall of Sam's house.



Scale: 1 cm represents 2 m

Sam wants to put a pond in his garden.
He wants it to be:

- nearer to B than A
- more than 8 metres from D.

Construct and shade the region where the pond can be. **[4]**

END OF QUESTION PAPER

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