

THIS IS A NEW SPECIFICATION

**F****GENERAL CERTIFICATE OF SECONDARY EDUCATION****MATHEMATICS A**

Unit A (Foundation Tier)

**A501/01**

Candidates answer on the question paper.

**OCR supplied materials:**

None

**Other materials required:**

- Scientific or graphical calculator
- Geometrical instruments
- Tracing paper (optional)

**Monday 17 January 2011****Afternoon****Duration: 1 hour**

Candidate forename		Candidate surname	
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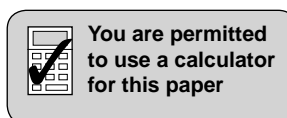
Centre number						Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- 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).
- Answer **all** the questions.
- 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.

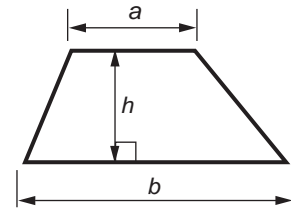


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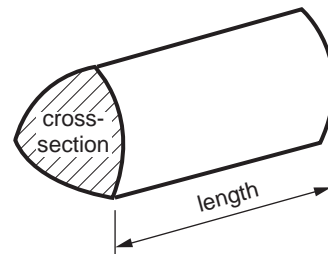
2

## Formulae Sheet: Foundation Tier

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








**Volume of prism** = (area of cross-section)  $\times$  length




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## 3

1 This pictogram represents the drinks sold one morning from a machine.

Tea	
Coffee	
Chocolate	
Orange	
Soup	
Cola	

Key:  = 4 drinks

(a) How many drinks of Tea were sold?

(a) \_\_\_\_\_ [1]

(b) How many **more** drinks of Orange were sold than drinks of Chocolate?

(b) \_\_\_\_\_ [1]

(c) 9 drinks of Cola were sold.

Complete the last row of the pictogram. [1]

(d) Which drink was the most popular?

(d) \_\_\_\_\_ [1]

4

2

34	6	16	17	48	20	21
----	---	----	----	----	----	----

Choose from this list of numbers

(a) a multiple of 5,

(a) \_\_\_\_\_ [1]

(b) a factor of 24,

(b) \_\_\_\_\_ [1]

(c) a prime number,

(c) \_\_\_\_\_ [1]

(d) two numbers that add to 50,

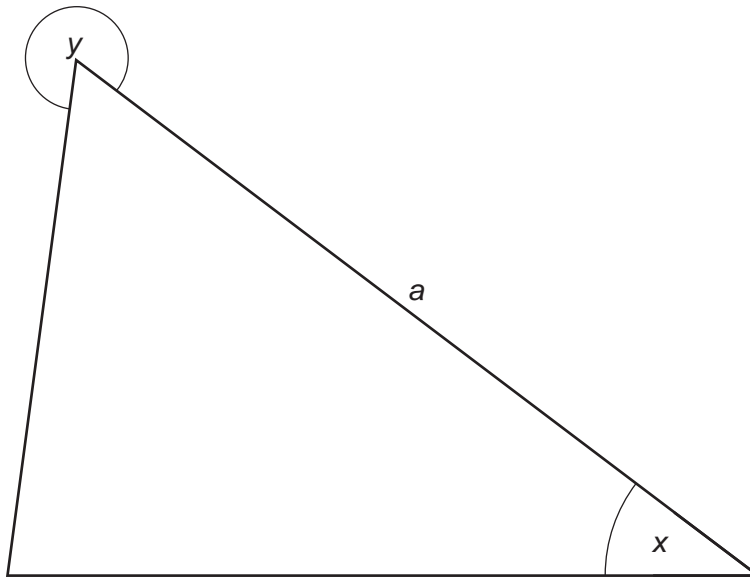
(d) \_\_\_\_\_ and \_\_\_\_\_ [1]

(e) a square number.

(e) \_\_\_\_\_ [1]

5

3 Here is a triangle.



- (a) Measure the length of side  $a$ .  
Give the units of your answer.

(a) \_\_\_\_\_ [2]

- (b) Measure angle  $x$ .

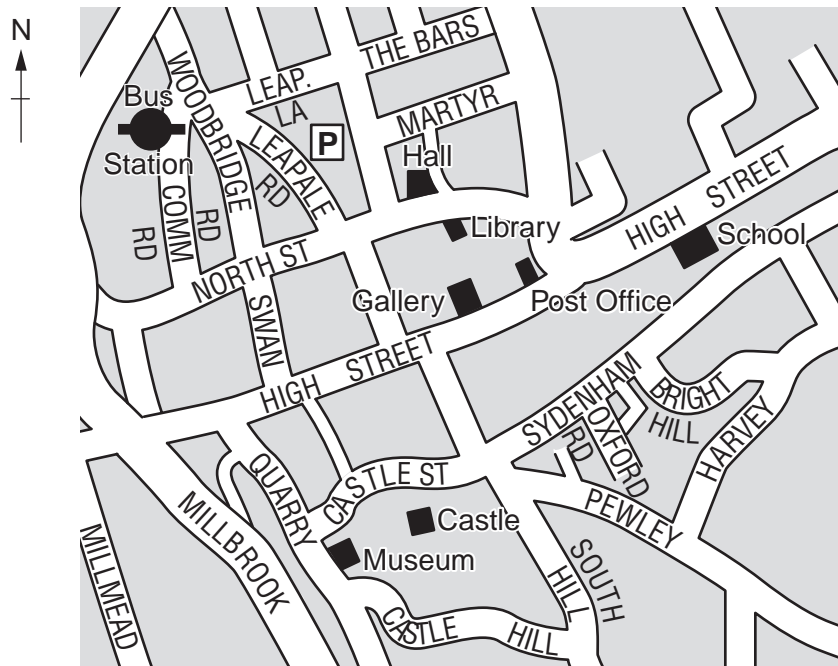
(b) \_\_\_\_\_ ° [1]

- (c) What type of angle is angle  $y$ ?  
Put a ring around the correct answer.

obtuse	right angle
acute	reflex

[1]

- 4 (a) This map shows part of Guildford.



- (i) Use compass directions to complete the following sentences.

From the Castle, the Hall is \_\_\_\_\_.

From the Castle, the School is \_\_\_\_\_.

[2]

- (ii) Here are directions to walk from the car park **P** to the Library.

Complete them using left and right.

Walk from the car park and turn \_\_\_\_\_ into Leapale Road.

At the end of the road, turn \_\_\_\_\_ into North Street.

Walk along the street. The Library is on the \_\_\_\_\_.

[1]

7

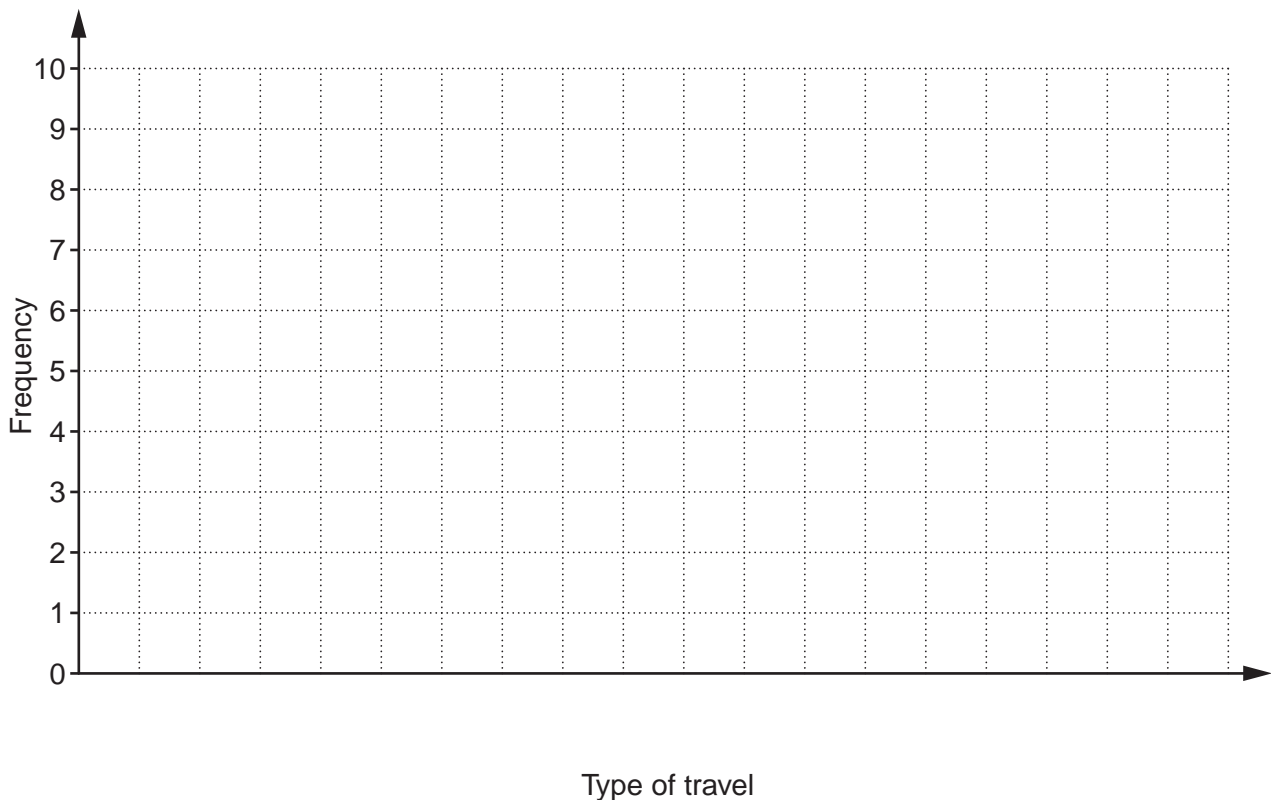
- (b) Jan surveyed some shoppers in the High Street and asked them how they had travelled to Guildford.  
She filled in a tally chart with the results.

Type of travel	Tally	Frequency
Walk	II	2
Bus	IIII II	7
Train	IIII	5
Cycle	III	3
Car	IIII	
Park and Ride	IIII III	

- (i) Complete the frequency column on her chart. [1]
- (ii) How many people did Jan survey altogether?

(b)(ii) \_\_\_\_\_ [1]

- (iii) Draw a frequency diagram to represent her results.



[3]

Turn over

8

- 5 This girl's height is 1.6 m.

Estimate the height of the tree.  
Show how you worked out your answer.



\_\_\_\_\_ m [2]

- 6 Katie buys a 500ml bottle of blackcurrant squash costing £2.95.  
She mixes it with 6 litres of sparkling water to make 6.5 litres of fizzy blackcurrant drink.  
Katie uses a supermarket basic brand of sparkling water which costs 10p for a 2 litre bottle.

(a) How much does Katie's fizzy blackcurrant drink cost her per litre?

(a) \_\_\_\_\_ p [4]



9

- (b)** The supermarket also sells a ready-made fizzy blackcurrant drink. This costs £2.10 for a 750 ml bottle.

How much more expensive is this per litre than the drink that Katie made?

**(b)** £ \_\_\_\_\_ [4]

- (c)** Katie uses the 6.5 litres of fizzy blackcurrant drink for a party.

How many glasses, each holding 300 ml, can she fill with the drink?

**(c)** \_\_\_\_\_ [3]

## 10

- 7 Dolbear's Law connects air temperature and the number of chirps made by an insect called a Snowy Tree Cricket.

$$\text{Temperature in } ^\circ\text{F} = \text{number of chirps that the cricket makes in fifteen seconds} + 40$$

- (a) Find the temperature when the cricket makes 12 chirps in fifteen seconds.

(a) \_\_\_\_\_  $^\circ\text{F}$  [1]

- (b) How many chirps does the cricket make in a **minute** when the temperature is  $85^\circ\text{F}$ ?

(b) \_\_\_\_\_ [3]

11

8 Calculate.

(a)  $\sqrt{14.44}$

(a) \_\_\_\_\_ [1]

(b)  $\frac{6.26 - 0.82}{1.55}$

Give your answer correct to 2 decimal places.

(b) \_\_\_\_\_ [2]

9 (a) Simplify.

(i)  $a \times a \times a$

(a)(i) \_\_\_\_\_ [1]

(ii)  $5a + 3b + 2a - b$

(ii) \_\_\_\_\_ [2]

(b) Work out the value of  $4b^2$  when  $b = -2.5$ .

(b) \_\_\_\_\_ [2]

(c) Solve.

$$5(2x - 7) = 3$$

(c) \_\_\_\_\_ [3]

## 13

- 10 (a)** In a sale, the ratio of the sale price to the normal price is 3 : 5.  
Mary buys a jacket in the sale.  
Its normal price is £45.

What is the sale price of the jacket?

**(a)** £ \_\_\_\_\_ [2]

- (b)** On the final day of the sale, prices are reduced further.  
The price of a rucksack on the final day is £12; its normal price is £32.

Write the ratio of the final price to the normal price.  
Give your answer in its simplest form.

**(b)** \_\_\_\_\_ [2]

14

11 The number of matches in each of 50 boxes is summarised in the table.

Number of matches	Frequency
46	7
47	18
48	14
49	10
50	1

Calculate the mean number of matches in a box.

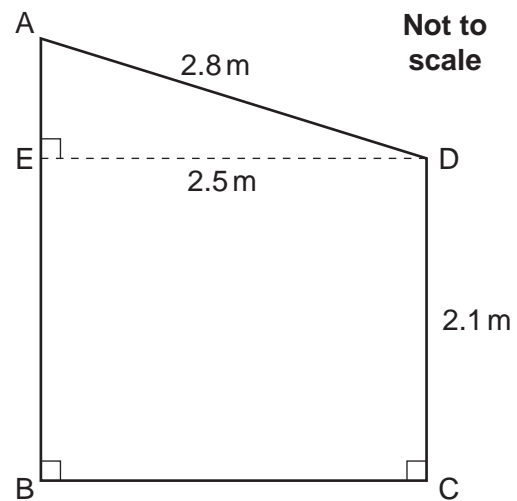
\_\_\_\_\_ [3]

15

- 12 Sean is building a shed.  
This diagram shows the end view of his shed.  
The width ED of the shed is 2.5 m.  
The height CD of the front of the shed is 2.1 m.

Sean makes the roof AD 2.8 m long.

Calculate the height AB of the back of the shed.



\_\_\_\_\_ m [4]

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