

For OCR

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS**

**Foundation Paper 2A**

**F**

Time: 2 hours

Candidates answer on the question paper.  
Additional materials: Calculator  
Geometrical instruments  
Tracing paper (optional)

Name

**INSTRUCTIONS TO CANDIDATES**

- Write your name in the box above.
- Answer **all** the questions.
- Read each question carefully.
- Show all your working. Marks may be given for working even if you get the answer wrong.
- WRITE YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED.

**INFORMATION FOR CANDIDATES**

- The number of marks for each question is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is 100.
- Unless otherwise instructed take  $\pi$  to be 3.142 or use the  $\pi$  button on your calculator.

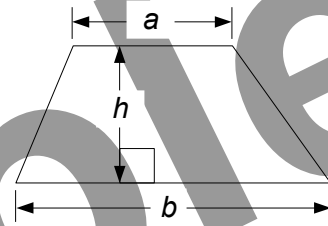


Written by Shaun Armstrong

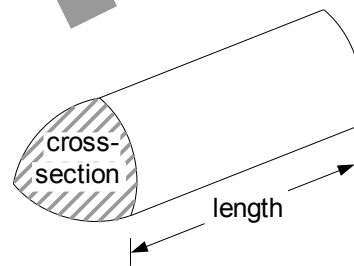
Only to be copied for use in the purchaser's school or college

## FORMULAE SHEET

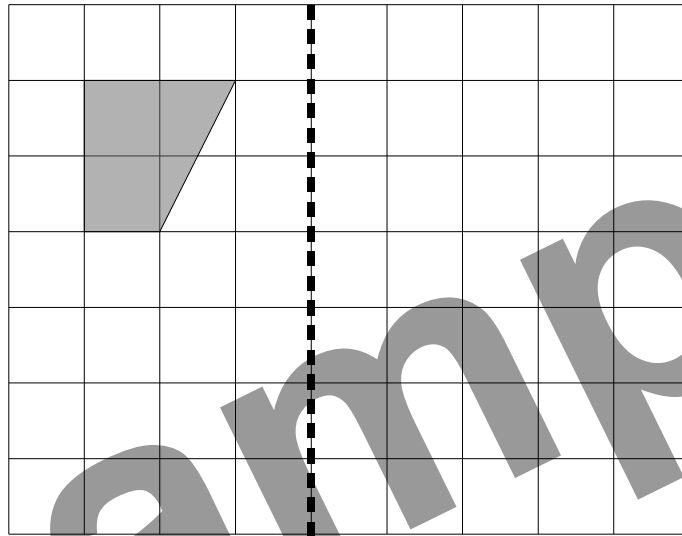
**Area of trapezium** =  $\frac{1}{2}(a + b)h$



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



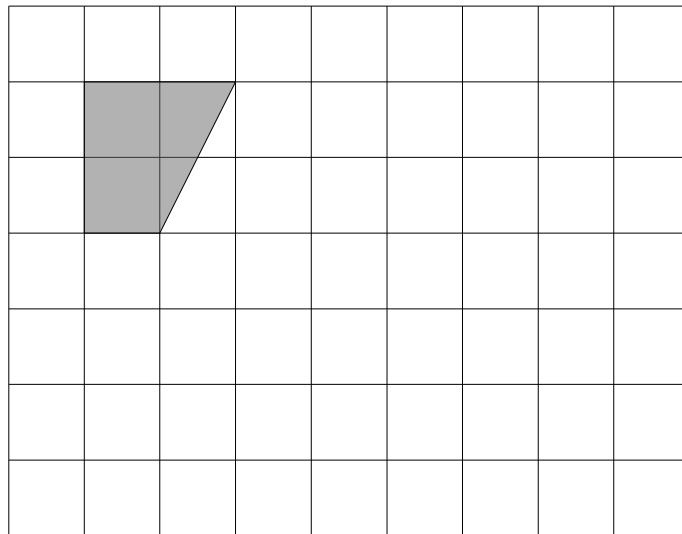
1 (a) Reflect the shaded shape in the mirror line.



mirror line

[2]

(b) On the grid, show how the shaded shape tessellates.  
You should draw at least 6 shapes.

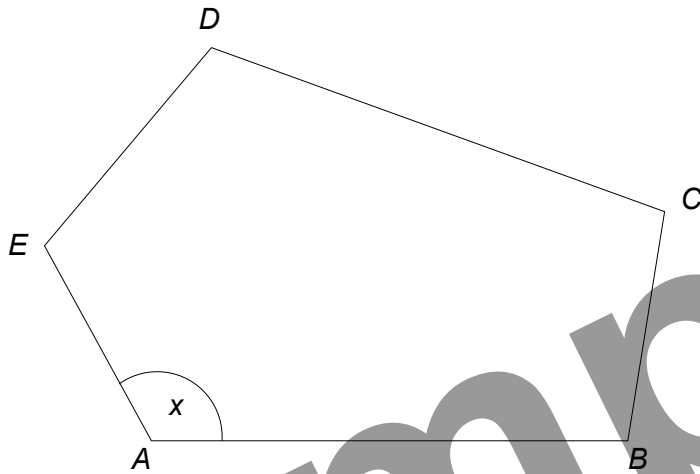


[2]

[Turn over



4



The diagram is an accurate drawing of shape *ABCDE*.

(a) Write down the mathematical name of this shape.

(a) ..... [1]

(b) Measure the length of the side *AB*.

(b) ..... cm [1]

(c) Measure the size of the angle marked *x*.

(c) .....° [1]

(d) What type of angle is *x* ?

(d) ..... [1]

[Turn over



7 (a) Here is a number sequence.

62 58 54 50

(i) Write down the next number in this sequence.

(a)(i) ..... [1]

(ii) Write down the rule for continuing this sequence.

.....  
..... [1]

(b) Here is another number sequence.

249 87 33 15

The rule for continuing this sequence is

**DIVIDE BY 3, THEN ADD 4**

Write down the next two numbers in this sequence.

(b) ..... , ..... [2]

8 These are the prices for the items Jim wants to buy.

Carton of Juice 69p each  
Bread roll 22p each OR 4 for 80p  
Cheddar Cheese £6.50 per kilogram

Complete Jim's shopping bill.

Item	Quantity	Cost (£)
Carton of Juice	5	
Bread roll	8	
Cheddar Cheese	500 g	
<b>TOTAL</b>		

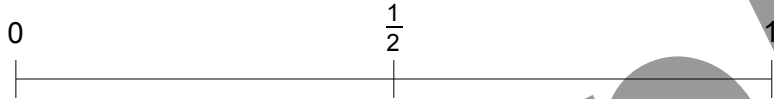
[4]

[Turn over



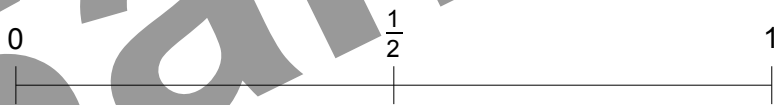
**10** In each part of this question a probability scale is drawn.  
Use an arrow to show the probability of the given event.

**(a)** A baby will be born somewhere in Scotland tomorrow.



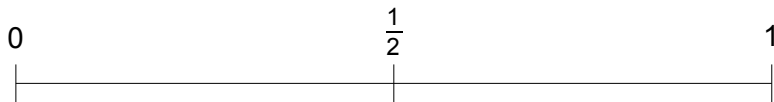
[1]

**(b)** A 6 is scored when an ordinary dice is rolled.



[1]

**(c)** A law will be passed next year banning blue cars.

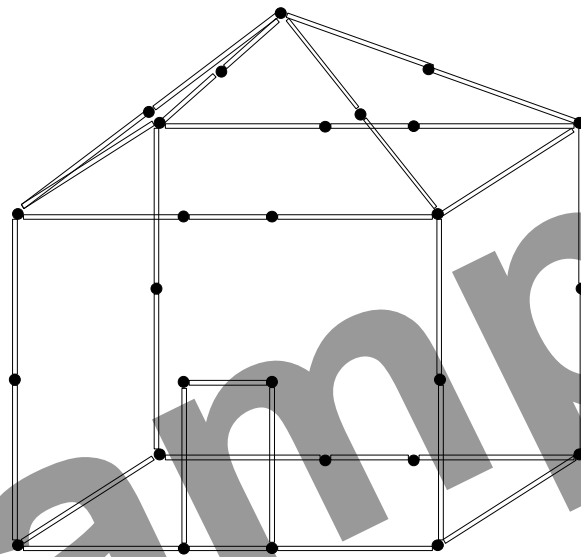


[1]

[Turn over



12 Ellie has a kit for making things out of drinking straws.



The kit contains 120 long straws and 80 short straws.  
Making a house uses 30 long straws and 5 short straws.

(a) Work out how many houses Ellie could make using the kit.

(a) ..... [2]

Making a car uses 8 long straws and 22 short straws.

(b) Work out how many straws would be left altogether if Ellie used the kit to make 3 houses and 2 cars.

(b) ..... [3]

[Turn over



14 Ann cycles to her friend's house.

She cycles at a steady speed of 6 metres per second for 25 minutes.

Work out the distance she travels.

Give your answer in kilometres.

..... km [4]

15 Angela recorded the resting pulse, in beats per minute, of 20 people.

Here are her results.

72 63 54 64 80 60 67 63 75 78

61 78 72 57 63 57 66 83 71 69

Draw an ordered stem and leaf diagram to show her results.

You should include a key.

[3]

[Turn over







**20** A company records how many employees are late each day for two weeks. Here are the results.

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	8	2	6	5	7
Week 2	6	5	4	3	6

**(a) (i)** What is the range of the number of employees who are late?

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

**(ii)** Find the median number of employees who are late.

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

The company also records how many employees are absent each day. Here are the results for one month.

Number of Employees Absent	Number of Days
2	1
3	5
4	11
5	9
6	4

**(b)** Work out the mean number of absent employees. Give your answer correct to 1 decimal place.

**(b)** ..... [3]

[Turn over



22 Zahir wants to change £300 into Euros (€).

There are two places where he can change his money.

<b>Central Bank</b>
£1 = €1.44
no fee

<b>Travel Mart</b>
£1 = €1.48
2% fee

(a) Work out how many Euros he would get at the Central Bank.

(a) € ..... [2]

(b) Work out how much extra he would get at the Travel Mart after paying the fee.

(b) € ..... [3]

[Turn over

