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Rewarding Learning

**General Certificate of Secondary Education
2019**

Centre Number

Candidate Number

Mathematics

Unit M5 Paper 2
(With calculator)

Foundation Tier

[GMC52]   *GMC52*

THURSDAY 6 JUNE, 10.45am–11.45am

TIME

1 hour.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
You must answer the questions in the spaces provided.
Do not write outside the boxed area on each page, on blank pages or tracing paper.
Complete in black ink only. **Do not write with a gel pen.**
Answer **all fourteen** questions.
All working should be clearly shown in the spaces provided. Marks may be awarded for partially correct solutions.
You **may** use a calculator for this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 50.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.
You should have a calculator, ruler, compasses and a protractor.
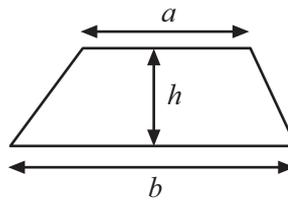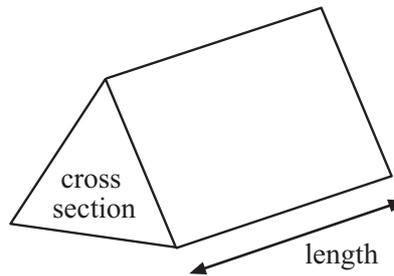The Formula Sheet is on page 2.

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20GMC5201

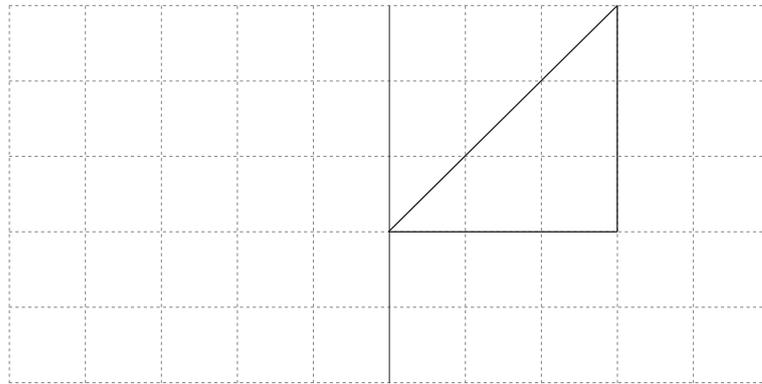# Formula Sheet

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

Volume of prism = area of cross section × length

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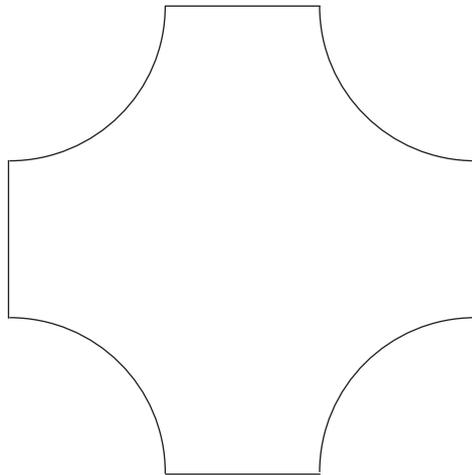**1** **(a)** Reflect the triangle in the mirror line.

mirror line

[2]

(b) Draw all the lines of symmetry on the shape below.

[2]

[Turn over

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2 **(a)** Which **imperial** unit would be used to measure

    (i) the distance from Enniskillen to Belfast,

        Answer _____ [1]

    (ii) the capacity of a carton of milk?

        Answer _____ [1]

(b) Explain how to change pounds into kilograms.

[2]

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3   In Year 10

there are more boys than girls;
all pupils are 13 or 14 years old;
there are the same number of 13-year-olds as 14-year-olds;
everyone studies French.

One pupil is taken at random from Year 10

What is the probability that the pupil

(a) is a girl?

Circle the correct answer.

impossible   unlikely   evens   likely   certain   [1]

(b) is 14 years old?

Circle the correct answer.

impossible   unlikely   evens   likely   certain   [1]

(c) does **not** study French?

Circle the correct answer.

impossible   unlikely   evens   likely   certain   [1]

[Turn over

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4 **(a)** Jenny writes the first six square numbers as

$$2, \quad 4, \quad 9, \quad 16, \quad 25, \quad 36$$

Explain why she is wrong.

Answer _____ [1]

(b) Part of the sequence of triangular numbers is shown.

$$\ldots 21, \quad 28, \quad 36, \quad 45, \quad 55, \quad 66 \ldots$$

(i) Which triangular number comes directly before 21?

Answer _____ [1]

(ii) Write down the smallest triangular number which is greater than 100

Answer _____ [1]

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5 **(a)** Joe has 12 pints of oil.

How many litres is this?

Use 1 pint = 0.568 litres.

Answer _____ [2]

(b) Jan has 15 litres of oil.

How many pints is this?

Answer _____ [2]

[Turn over

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6   Tickets numbered from 1 to 81 are placed in a hat.
One winning ticket is taken at random.

(a) What is the probability that the winning ticket is the number 70?

Answer _____ [1]

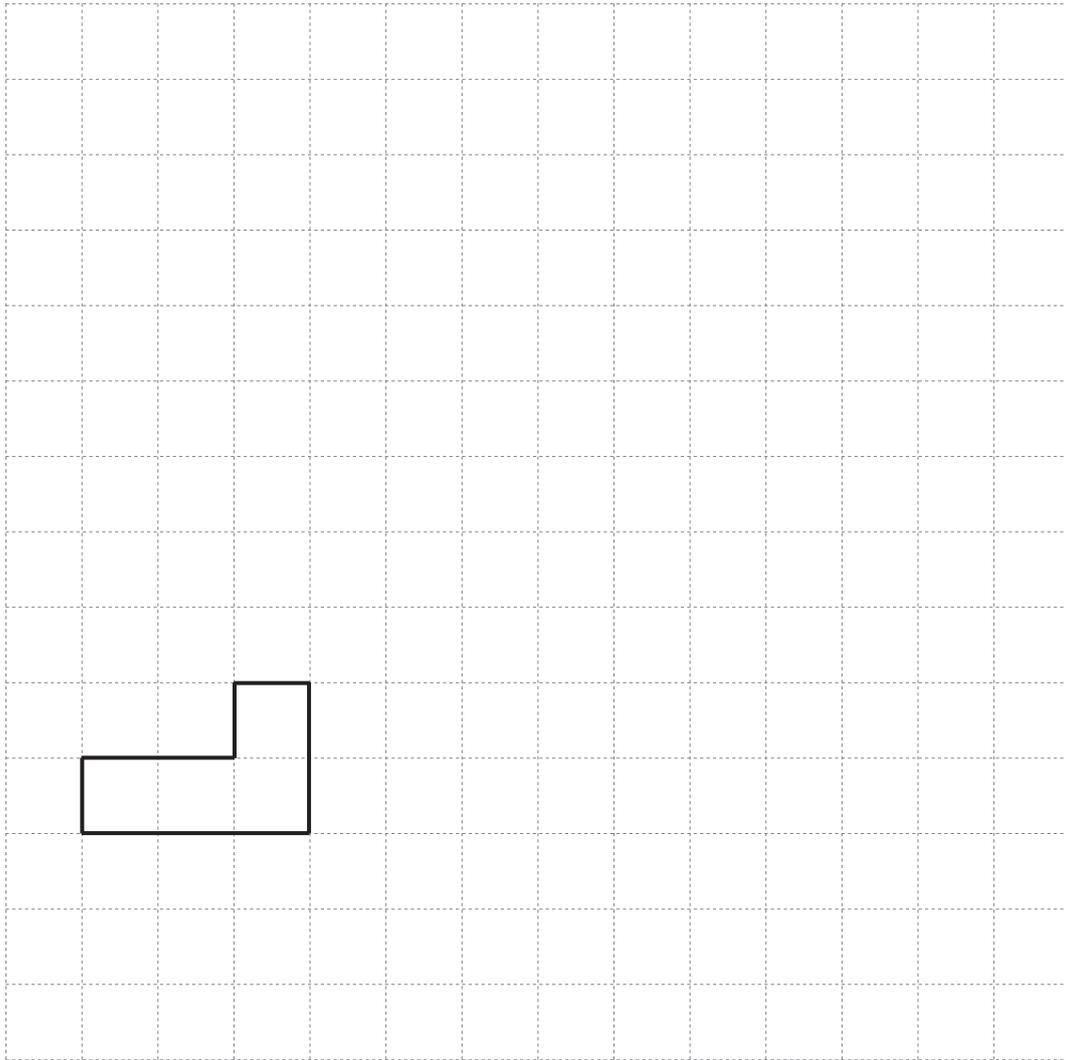**(b)** What is the probability that the winning ticket is a number bigger than 70?

Answer _____ [2]

(c) Explain why the probability of the winning ticket having an even number is not $\frac{1}{2}$

_____ [1]

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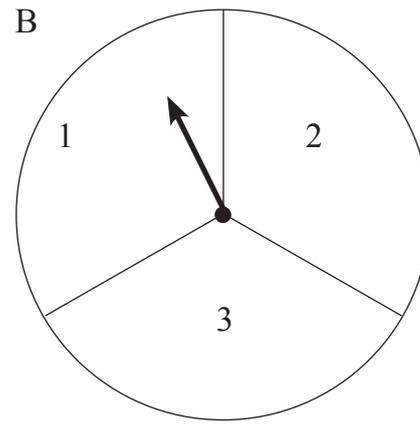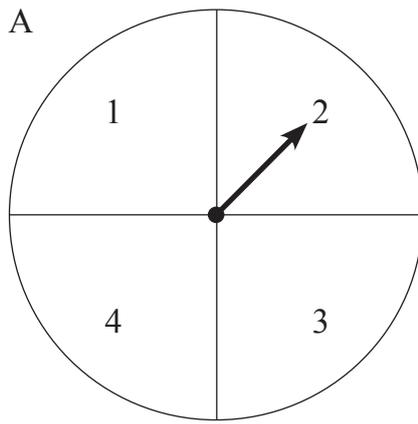
7 Enlarge the shape by scale factor 3

[2]

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8

A

B

Spinners A and B are each spun once.

(a) Complete the table to show all the possible outcomes.

Spinner B

	1	**2**	**3**
1	1, 1	1, 2	1, 3
2	2, 1	2, 2	
3	3, 1		
4			

Spinner A

[1]

(b) What is the probability of getting the same number on each spinner?

Answer _____ [1]

(c) What is the probability of getting a bigger number on A than B?

Answer _____ [1]

9 **(a)** In a choir there are 36 female and 24 male singers.

Write down the ratio of female to male singers in its simplest form.

Answer _____ [2]

(b) There are 52 people in an orchestra.
The ratio of males to females is 3:1
Calculate the number of males and females in the orchestra.

Answer _____ males, _____ females [2]

[Turn over

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10 There are 32 pupils in a class and all were present on Monday.

On Monday the teacher asked each pupil their favourite colour.

She recorded the results for green, blue and yellow accurately in a table.

	Green	**Blue**	**Yellow**	**Total**
Girls	3	5	4	12
Boys	4	7	2	13
Total	7	12	6	25

(a) Give a reason why the total number of boys and girls in the table is not 32

_____ [1]

(b) There are 18 girls in the class.

What is the probability that a girl said the colour blue?

Answer _____ [1]

(c) What is the probability that a pupil in the class **did not** say green?

Answer _____ [1]

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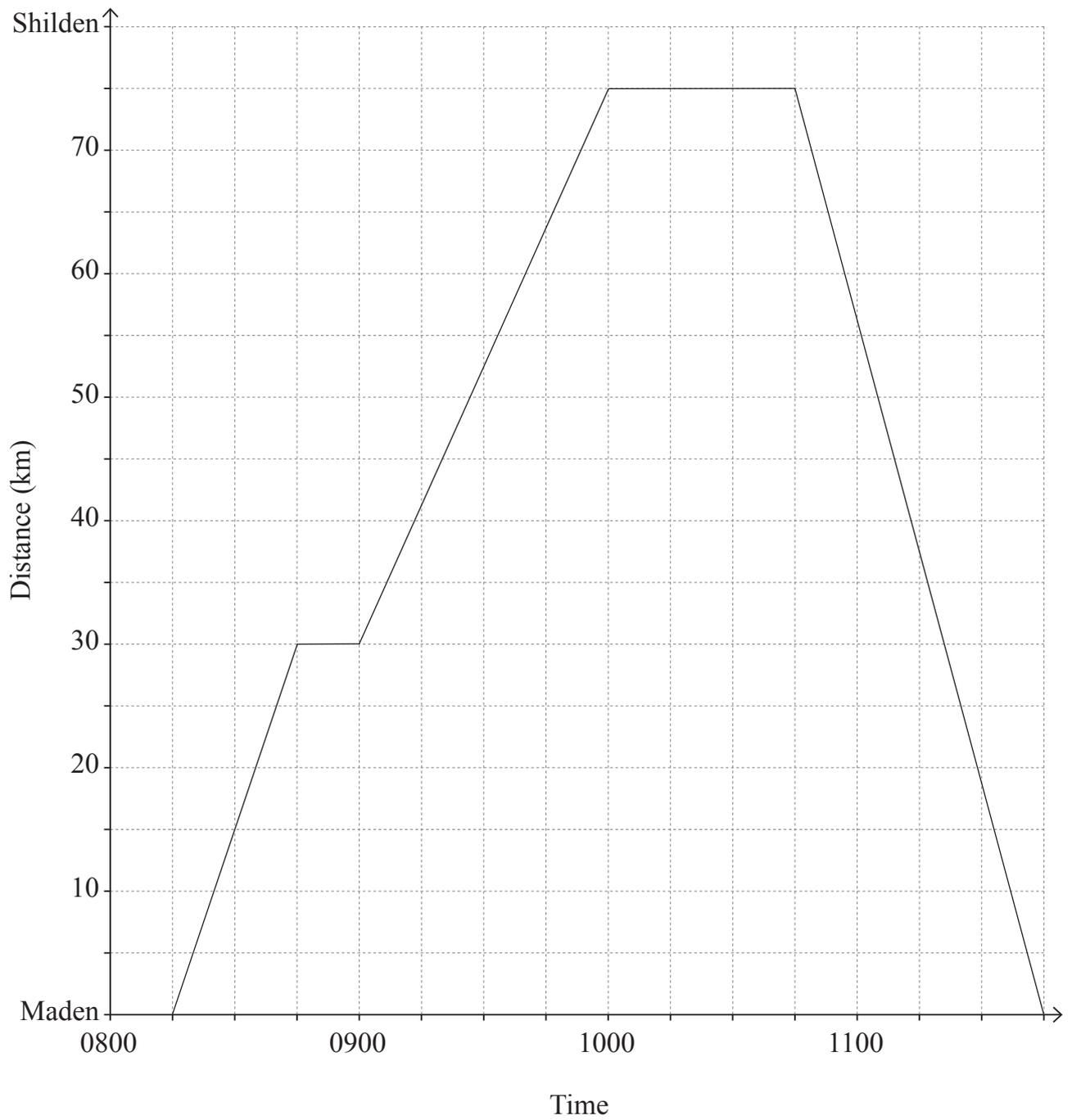
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(Questions continue overleaf)

11 The graph shows Ryan's journey from Maden to Shilden and back to Maden.

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(a) During the total journey, for how long was Ryan not moving?

Answer _____ minutes [1]

(b) How far is Ryan from Maden at 0930?

Answer _____ km [1]

(c) Calculate the average speed for the whole journey.

State the units of your answer.

Answer _____ [3]

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12 Sue bought 100 ml of suncream for £5.40 in Belfast.

While in Spain she bought 150 ml of suncream for 8.80 euro.

The exchange rate was £1 = 1.07 euro.

Was it better value in Belfast or in Spain?

Show your working.

Answer _____ [5]

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13 There are four possible results from a music examination.

Result	Fail	Pass	Credit	Distinction
Probability		$\dfrac{1}{2}$	$\dfrac{3}{10}$	$\dfrac{1}{20}$

The probabilities of some results are recorded in the table.

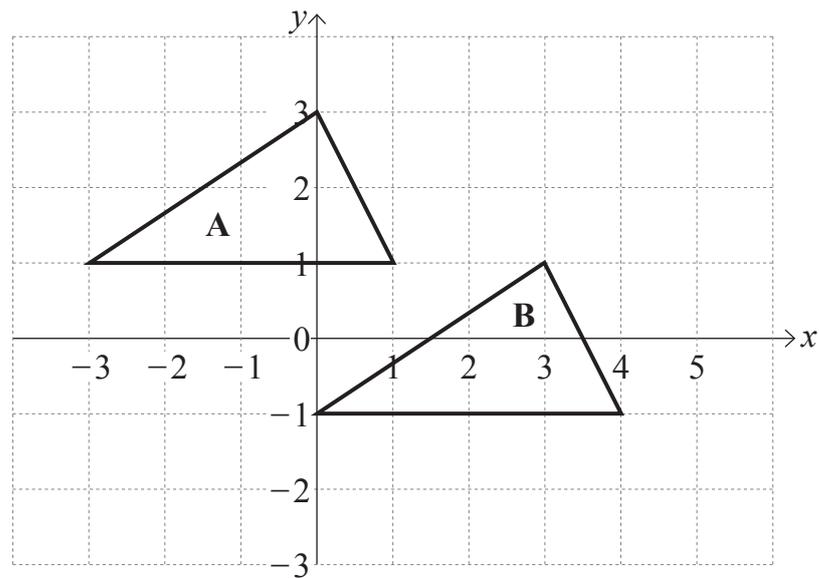**(a)** What is the probability of fail?

Answer _____ [2]

(b) What is the probability of credit or distinction?

Answer _____ [2]

[Turn over

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14

Describe the **single** transformation which maps triangle **A** to triangle **B**.

Answer _____ [2]

_____

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