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Rewarding Learning

General Certificate of Secondary Education
2019

Centre Number

Candidate Number

Mathematics

Unit M6 Paper 2
(With calculator)
Foundation Tier

MV18

[GMC62]
THURSDAY 6 JUNE, 10.45am–11.45am

Time

1 hour, plus your additional time allowance.

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 on blank pages or tracing paper.
Complete in black ink only.
Answer **all fifteen** 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 at the end of each question 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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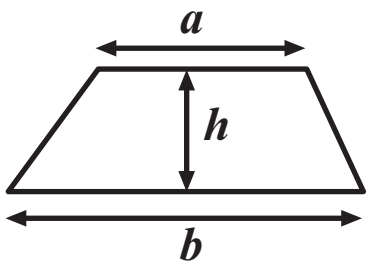
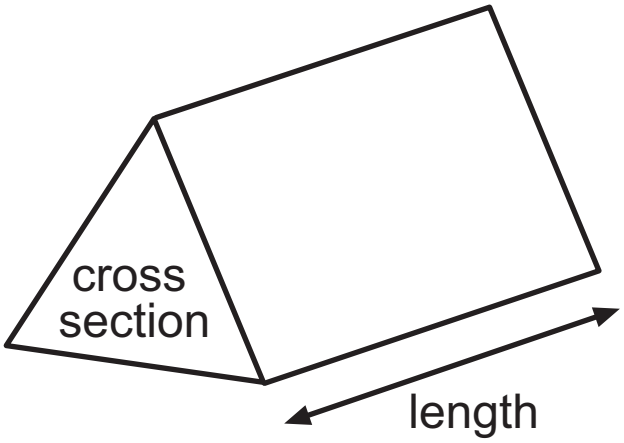
Formula Sheet

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



Volume of prism = area of cross section × length



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1 Part of the sequence of triangular numbers is shown.

… 21, 28, 36, 45, 55, 66 …

(a) Which triangular number comes directly before 21? [1 mark]

Answer _____

(b) Write down the smallest triangular number which is greater than 100 [1 mark]

Answer _____

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2 **(a)** **(i)** Joe has 12 pints of oil.

How many litres is this? [2 marks]

Use 1 pint = 0.568 litres.

Answer _____

(ii) Jan has 15 litres of oil.

How many pints is this? [2 marks]

Answer _____

(b) Explain how to change a weight in pounds into kilograms. [2 marks]

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3 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? [1 mark]

Answer _____

(b) What is the probability that the winning ticket is a number bigger than 70? [2 marks]

Answer _____

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

_____

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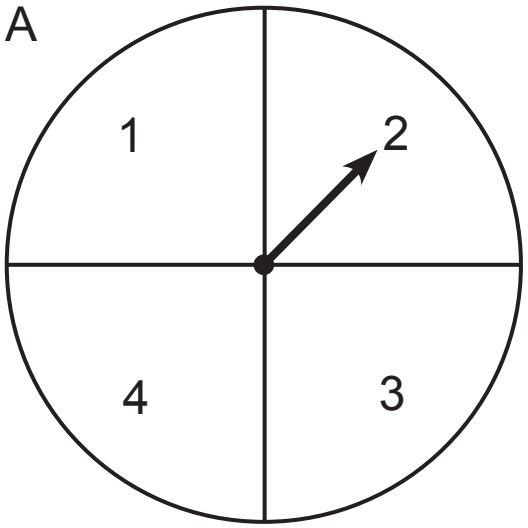
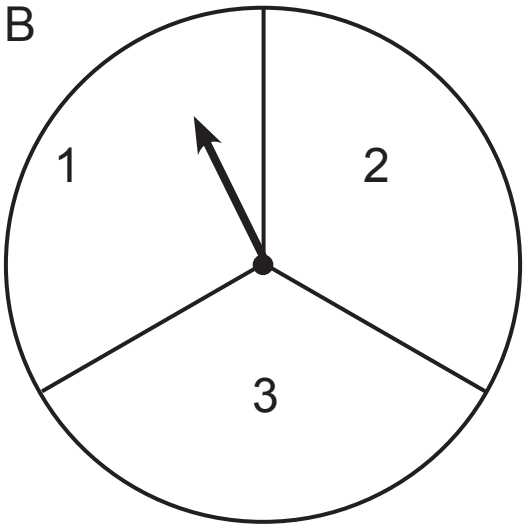
4 A



B



Spinners A and B are each spun once.

(a) Complete the table to show all the possible outcomes. [1 mark]

		Spinner B		
		1	**2**	**3**
Spinner A	**1**	1, 1	1, 2	1, 3
	2	2, 1	2, 2	
	3	3, 1		
	4			

(b) What is the probability of getting the same number on each spinner? [1 mark]

Answer _____

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(c) What is the probability of getting a bigger number on A than B? [1 mark]

Answer _____

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5 In a choir there are 36 female and 24 male singers.

Write down the ratio of female to male singers in its simplest form. [2 marks]

Answer _____

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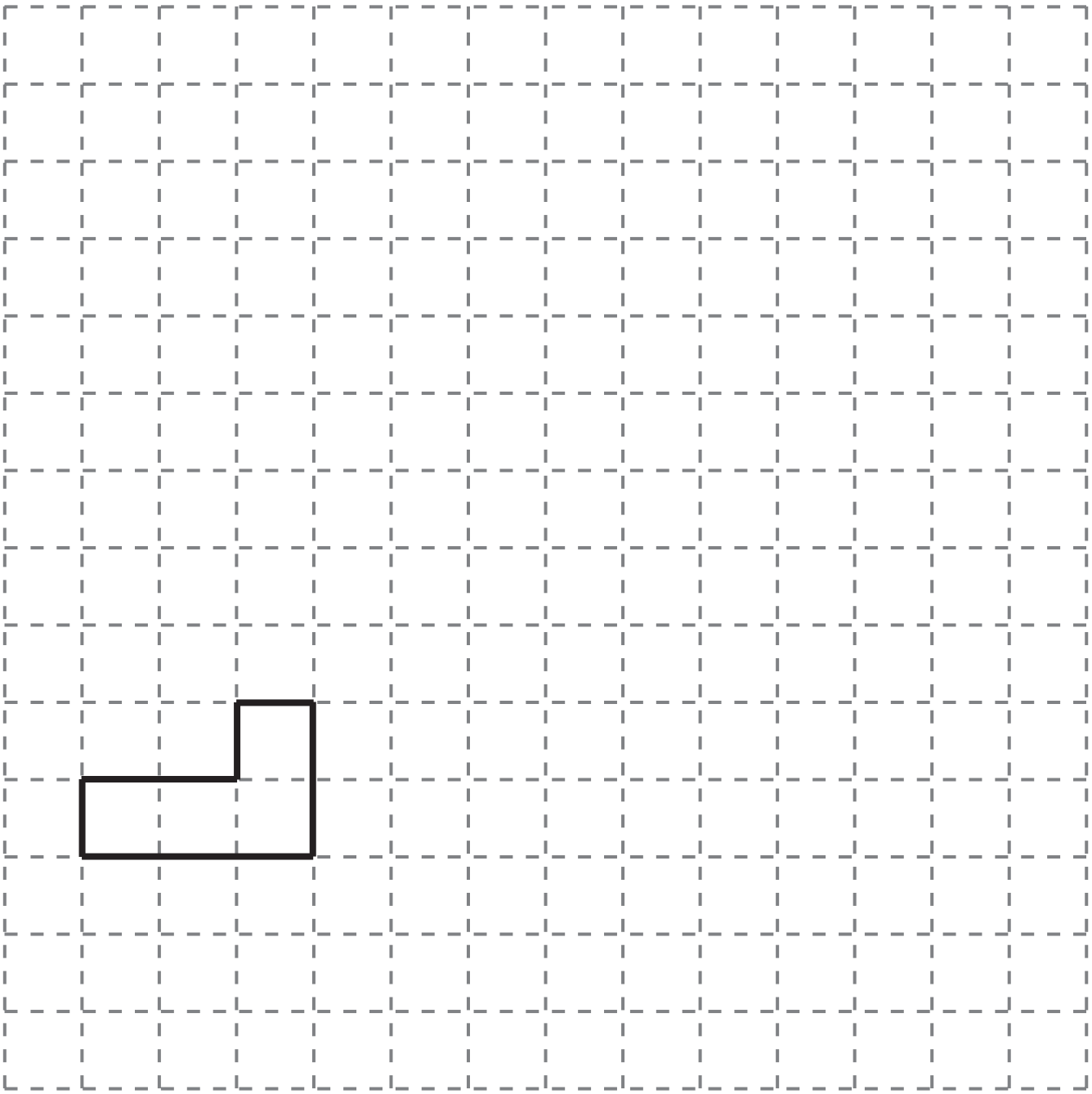
6 Enlarge the shape by scale factor 3 [2 marks]



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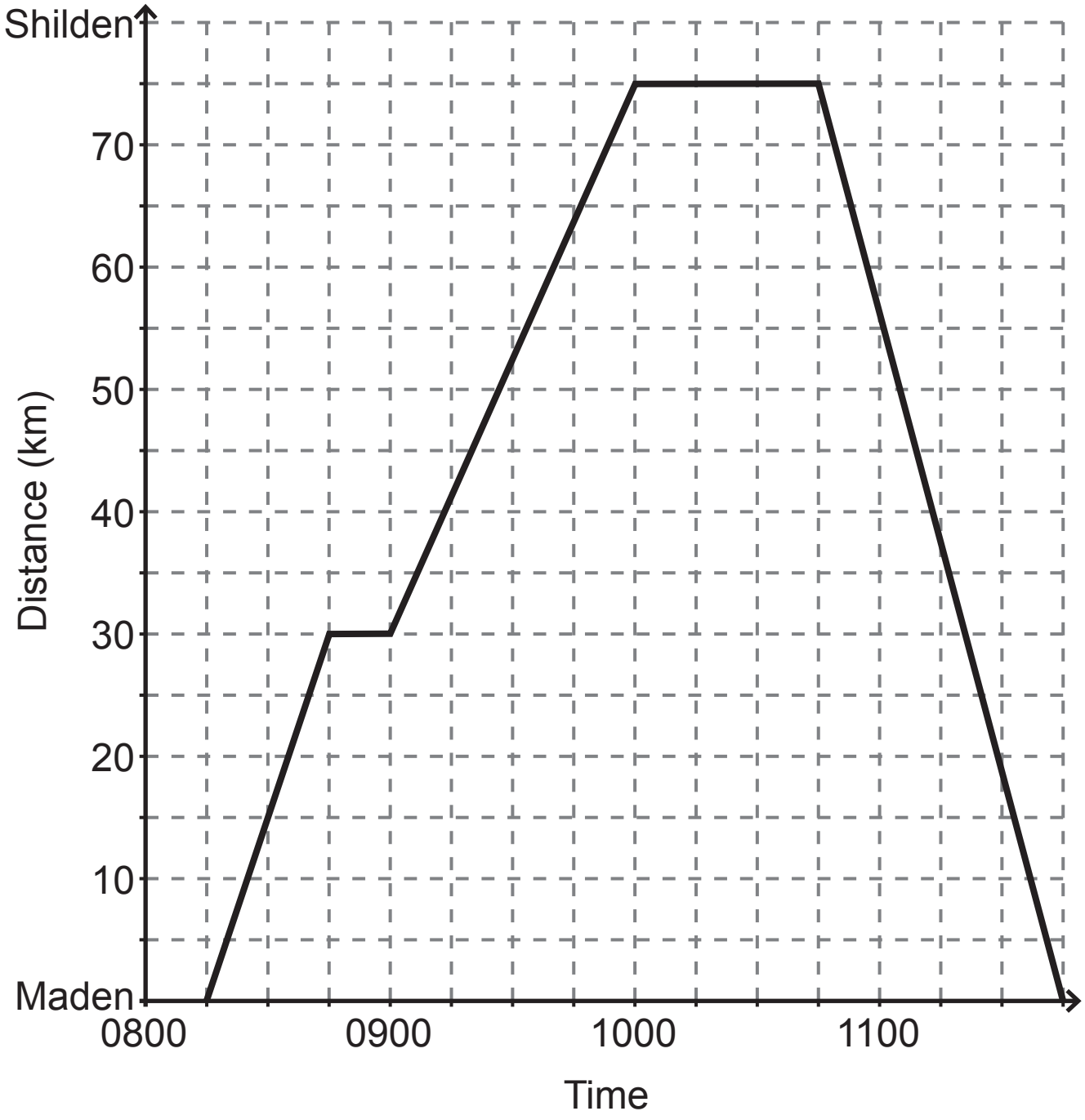
7 The graph shows Ryan's journey from Maden to Shilden and back to Maden.



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(a) During the total journey, for how long was Ryan not moving? [1 mark]

Answer _____ minutes

(b) How far is Ryan from Maden at 0930? [1 mark]

Answer _____ km

(c) Calculate the average speed for the whole journey. [3 marks]

State the units of your answer.

Answer _____

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8 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 mark]

_____

(b) There are 18 girls in the class.

What is the probability that a girl said the colour blue? [1 mark]

Answer _____

(c) What is the probability that a pupil in the class **did not** say green? [1 mark]

Answer _____

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9

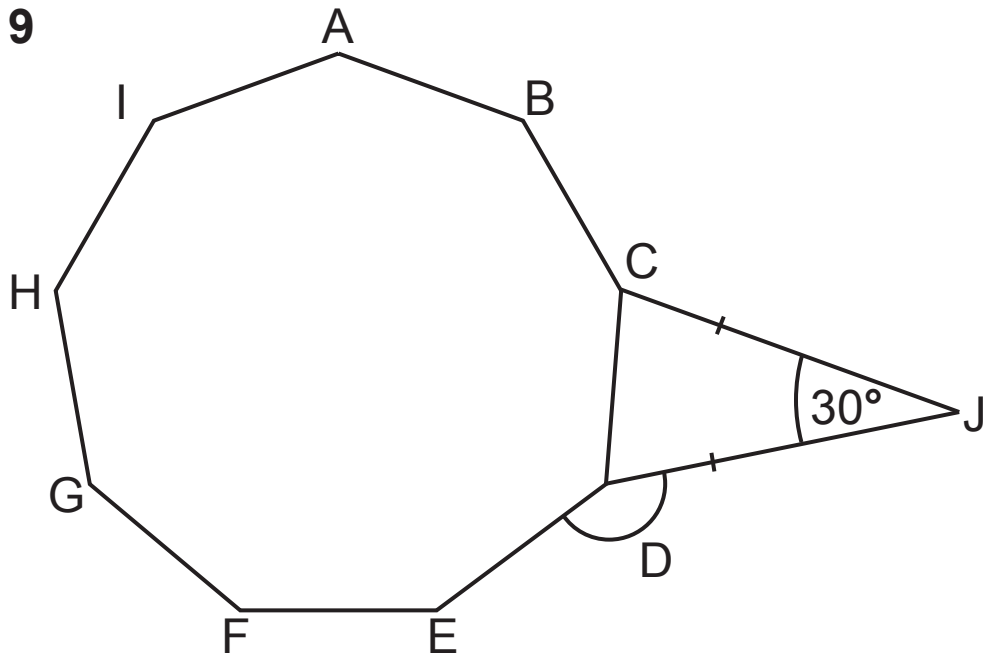

diagram not drawn accurately

The diagram shows a regular nonagon ABCDEFGHI with an isosceles triangle DCJ attached.

The angle DJC = 30°

Calculate the size of the angle EDJ. [4 marks]

Show your working clearly.

Answer _____ °

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10 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? [5 marks]

Show your working.

Answer _____

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11 There are four possible results from a music examination.

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

The probabilities of some results are recorded in the table.

(a) What is the probability of fail? [2 marks]

Answer _____

(b) What is the probability of credit or distinction? [2 marks]

Answer _____

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12 Simplify $\frac{m^5 \times m^3}{m^2}$ [1 mark]

Answer _____

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13 Work out the n^{th} term of the sequence

6, 3, 0, −3, ... [2 marks]

Answer _____

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14

ABCD is a rectangle, with AB = 9 cm and BC = 7 cm.

Shade the region inside the rectangle which is the locus of all points that are

(i) greater than 4.5 cm from C

and

(ii) nearer to B than D. [3 marks]

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15 Use trial and improvement to solve the equation
$x^3 - 3x = 11$

Give your answer correct to one decimal place. [4 marks]

You must show your working

x	$x^3 - 3x$	

Answer _____

THIS IS THE END OF THE QUESTION PAPER

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For Examiner's use only	
Question Number	**Marks**
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
Total Marks	

Examiner Number

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