



General Certificate of Secondary Education  
January 2020

Centre Number

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Candidate Number

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# Mathematics

Unit M6 Paper 2  
(With calculator)  
Foundation Tier



[GMC62]

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**WEDNESDAY 15 JANUARY, 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 sixteen** 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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# Formula Sheet

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

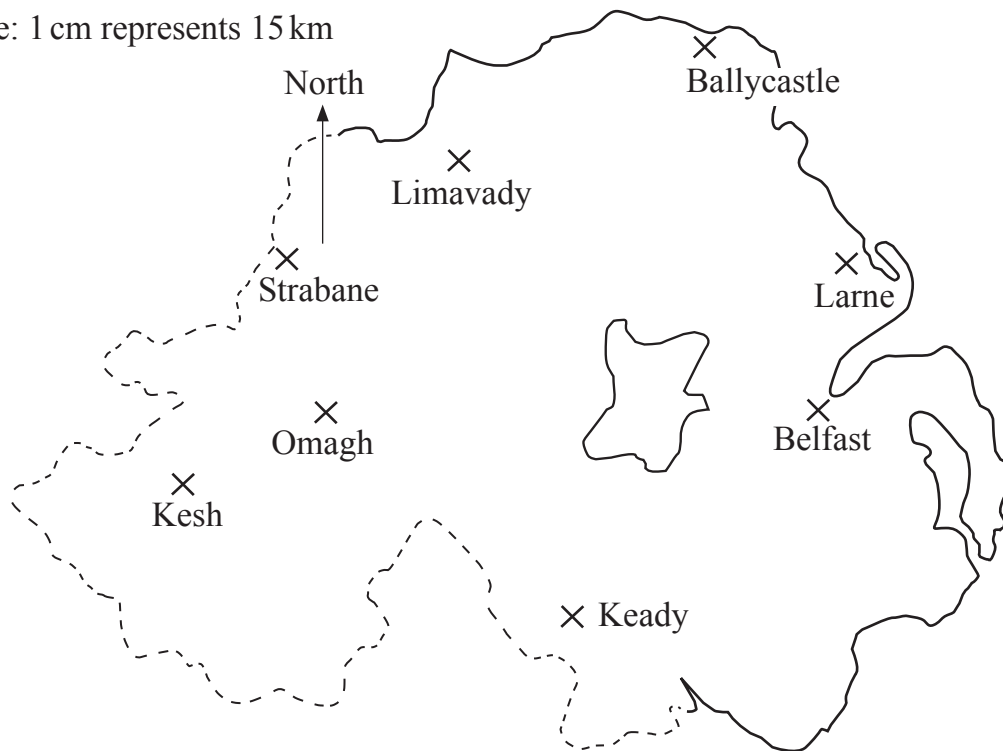


$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$



1 Some places in Northern Ireland are shown on the map.

Scale: 1 cm represents 15 km



(a) A bird flies directly from Keady to Larne.

What is the actual distance the bird flies?

Answer \_\_\_\_\_ km [2]

(b) Ballymoney is 30 km due east of Limavady.

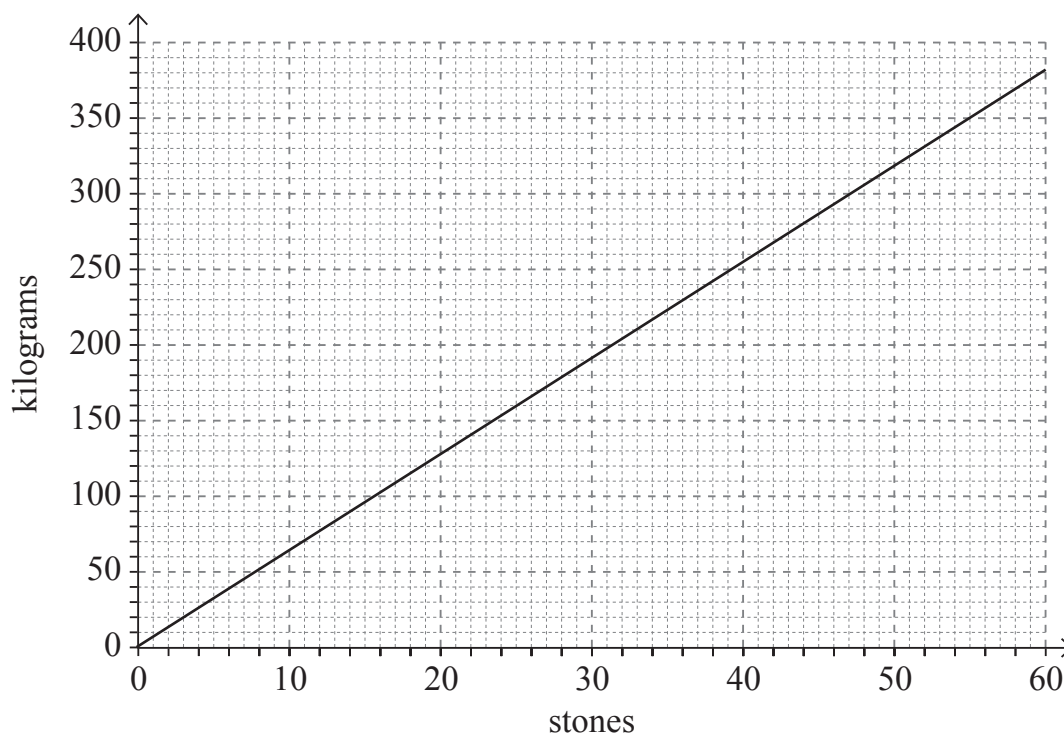
Mark Ballymoney on the map with an X.

[2]

[Turn over



2 You can use this graph to change between stones and kilograms.



(a) Use the graph to change 30 stones into kilograms.

Answer \_\_\_\_\_ kilograms [1]

(b) Nick orders 900 kilograms of topsoil.

Use the graph to change 900 kilograms into stones.

Show clearly how you used the graph.

Answer \_\_\_\_\_ stones [2]





3 Change 40 miles into kilometres.

Answer \_\_\_\_\_ [2]



4 (a) Sarah read the following instructions to draw a triangle:

- Using a ruler, draw an 8 cm horizontal line from A.
- Label the other end B.
- Place a protractor at point A on the baseline AB and measure an angle of  $40^\circ$ . Mark it with a dot.
- Draw a 12 cm line from A through your dot.
- Label the end of the line C.
- Join C to B.

Follow the instructions and draw Sarah's triangle below.

A •

[3]



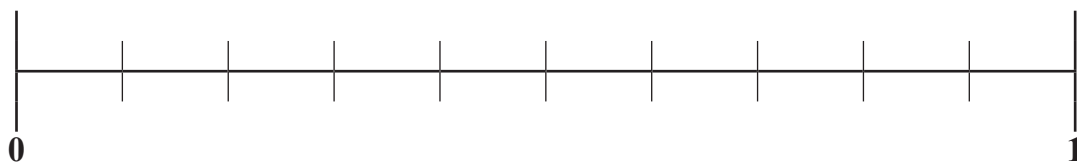
(b) Draw a parallelogram with sides of length 5 cm and 3 cm.

[2]



- 5 (a) The probability that it will rain tomorrow is 0.4

Mark with an X on the scale the probability that it will **not rain** tomorrow.



[1]

- (b) A fair dice has the numbers 1, 2, 2, 4, 5 and 8 marked on its faces.

Explain clearly why the probability of getting a prime number is less than the probability of getting an even number.

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[3]



6 Alan wants to take his family on a 13-night trip to Florida.

He must pay for four adults and three children.

His children will be charged at half the adult price.

He had planned to go at Christmas but now will go in April.



© Getty Images

How much extra will he have to pay?

Show all working.

### FLORIDA HOLIDAY PRICES

Departs	7th Sept to 15th Nov	16th Nov to 17th Jan	18th Jan to 13th Mar	14th Mar to 5th June	6th June to 30th June
13 nights	1699	1899	2049	2149	1899

Prices shown are for adults in £s per person.

Answer £ \_\_\_\_\_ [5]

[Turn over



7 Here are the first three terms of a number sequence.

90      84      78

(a) Write down the 8th term in this number sequence.

Answer \_\_\_\_\_ [1]

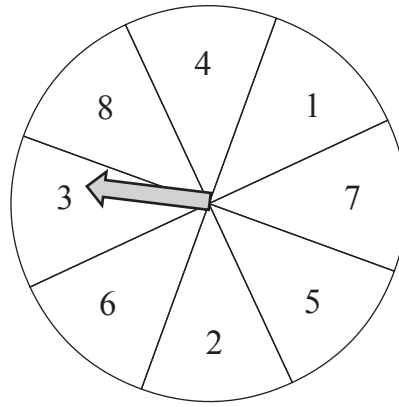
(b) Daniel says that 5 cannot be a term in this number sequence.

Is Daniel correct or not? Explain why.

Answer \_\_\_\_\_ [1]



8



A spinner consists of a circular wheel which is divided into eight sectors numbered 1 to 8 as in the diagram.

When spun, the arrow will point to one of the sectors.

(a) What is meant if the spinner is described as a **fair** spinner?

Answer \_\_\_\_\_  
\_\_\_\_\_ [1]

(b) The spinner is **not** fair.

The probability of the arrow pointing to the sector numbered 7 is 0.15

Work out the probability of the arrow not pointing to the sector numbered 7

Answer \_\_\_\_\_ [2]

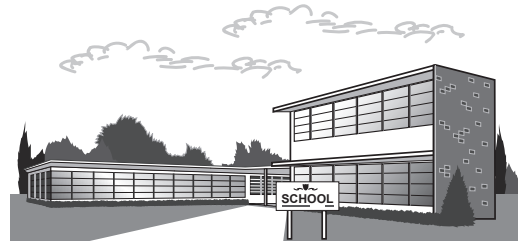
[Turn over



9 There are 648 pupils in a school.

The ratio of boys to girls is 4 : 5

How many girls are in the school?



Answer \_\_\_\_\_ [2]



10

### Instructions for Fizzy Juice

Mix 3 parts Fruit Juice  
with  
7 parts Lemonade



Molly has 600 ml of fruit juice.

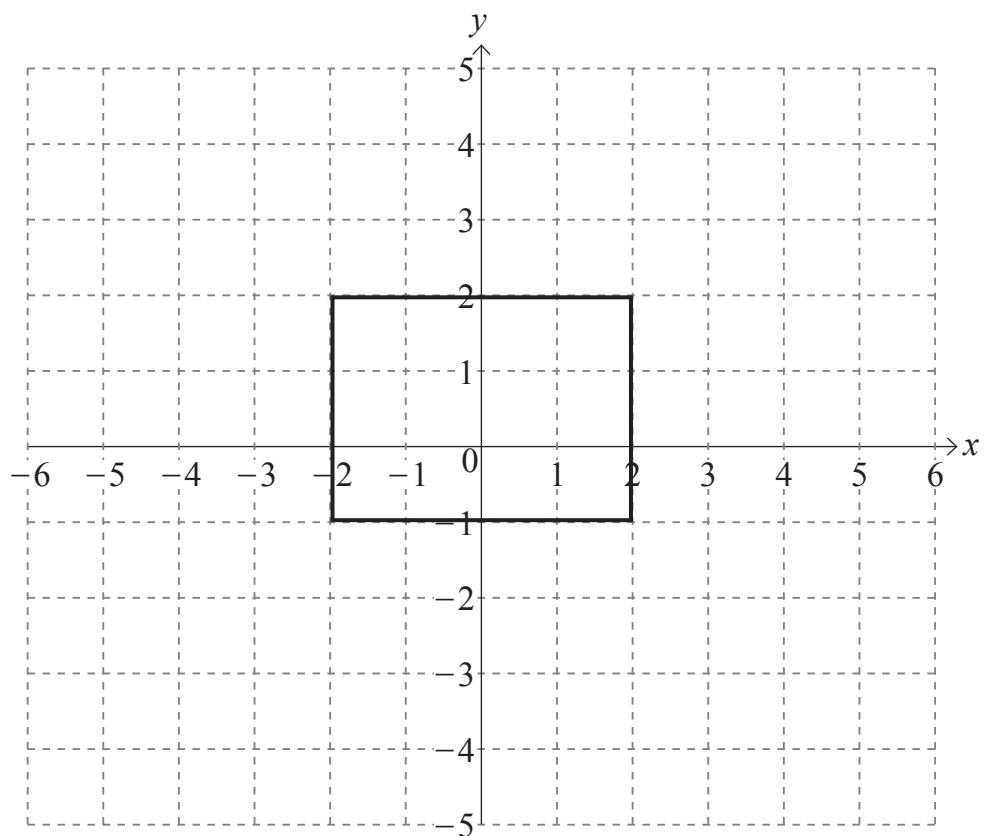
She also has 1800 ml of lemonade.

What is the maximum number of litres of fizzy juice she can make?

Answer \_\_\_\_\_ litres [3]



11



Enlarge the rectangle shown using a scale factor of 2 and centre of enlargement  $(0,0)$

[3]



12 In America, Dave bought a book for 28 dollars.

The exchange rate was 1 dollar = 81p.

In France, Evie bought a book for 25 euro.

The exchange rate was £1 = 1.09 euro.

Who paid more and how much more?

Answer \_\_\_\_\_ paid \_\_\_\_\_ more [4]

[Turn over

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14 The first four terms of a sequence are

2    7    12    17

Write down an expression for the  $n^{\text{th}}$  term of the sequence.

Answer \_\_\_\_\_ [2]



15 PQRS is a rectangle.

Shade the region inside the rectangle which is

more than 5 cm from P

**and** more than 3 cm from the line QR.



[3]



16 A survey is carried out to find out the number of electric cars on the road.

One hundred cars are surveyed each day for four days.

The results are recorded in the following table along with the relative frequencies so far.

Day	Number of cars surveyed	Number of electric cars	Relative frequency
1	100	11	0.11
2	100	12	0.115
3	100	16	0.13
4	100	9	

(a) Work out the missing relative frequency and record it in the table. [1]

(b) What would be the best estimate for the probability that a car chosen at random is electric?

Answer \_\_\_\_\_ [1]

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**THIS IS THE END OF THE QUESTION PAPER**

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**DO NOT WRITE ON THIS PAGE**

For Examiner's use only	
Question Number	Marks
1	
2	
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<b>Total Marks</b>	
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Examiner Number

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