

	Centre Number			
	Candidate Number			
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General Certificate of Secondary Education 2019

### **Mathematics**

Unit M6 Paper 1 (Non-Calculator)
Foundation Tier





[GMC61] \*GMC61\*

THURSDAY 6 JUNE, 9.15am-10.15am

#### 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 must not 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 ruler, compasses and a protractor.

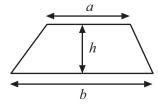
The Formula Sheet is on page 2.



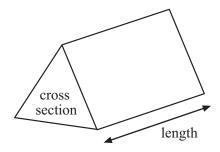
## **Formula Sheet**

Learning Cal

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



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





1	Anna buys these items for lu	nch.	
	Chicken Sandwich	£2.95	
	Banana	£0.89	
	Cup of coffee	£1.75	
	Bottle of water	£1.20	
	She pays with a £10 note.		
	She gets £2.21 change.		
	Is this change correct?		
	Show your working out.		
	Answer because	<u> </u>	[3]
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2



One letter is taken at random from the word COMMON.

Which of  $\bullet$ ,  $\checkmark$ , x, \* shows the probability that the letter is

(a) M,

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

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**(b)** T,

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

(c) a letter that appears twice in COMMON,

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

(d) a letter in the word MONOCLE?

Answer [1]

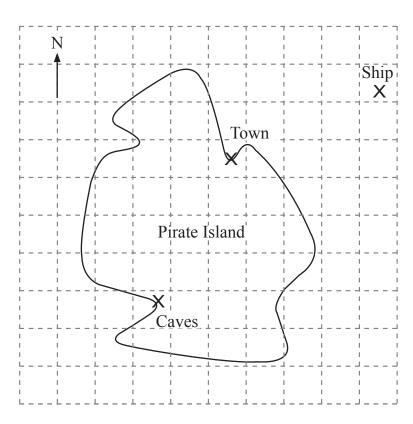
3 (a) Fill in the next two terms of this sequence.

[2]

**(b)** Write down the name of the numbers in the sequence below.



4



SCALE 1 cm = 2 km

(a) Use the scale to find the distance from the town to the caves.

Answer km [2]

- (b) Mark, with an X, the position of the buried treasure which is 6km due South of the town. [1]
- (c) Measure and write down the bearing of the ship from the town.

Answer \_\_\_\_\_ ° [2]

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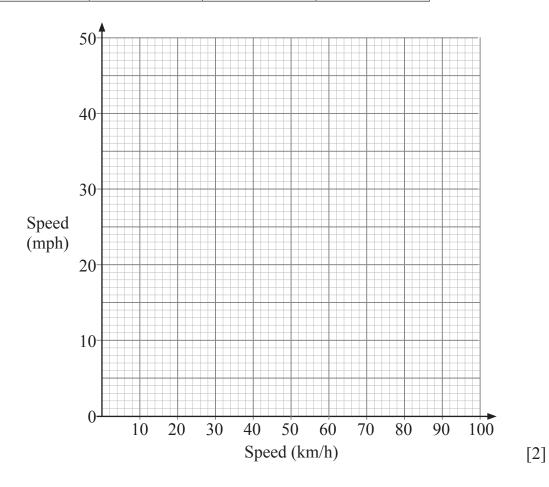


5 Speed can be measured in kilometres per hour (km/h) or miles per hour (mph).

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(a) Use the values in the table to draw a conversion graph.

Speed (km/h)	0	40	80
Speed (mph)	0	25	50



**(b)** Jonah is travelling at 50 km/h.

Is he breaking the 30 mph speed limit?

You must use your graph to help explain your answer clearly.

Answer	because		
	•	 	

[1]



6 Tom bought a full bag of coal.

After one week the bag was  $\frac{2}{3}$  full.

During the next week he used  $\frac{1}{4}$  of the remaining coal.

What fraction was left in the bag?

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

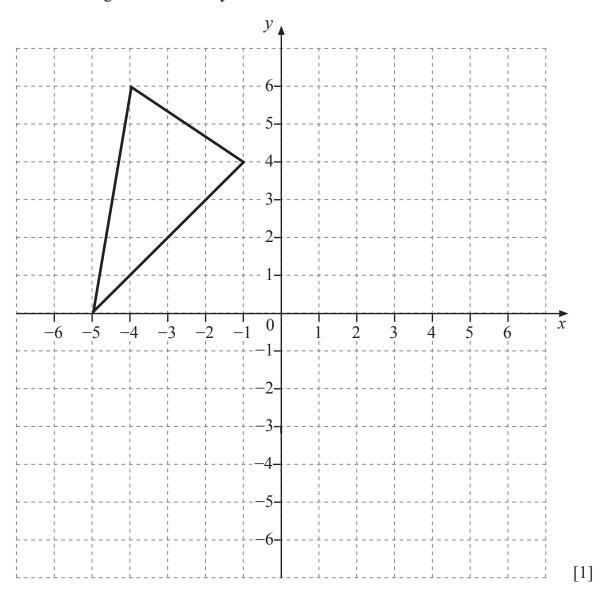
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7 Reflect the triangle shown in the *y*-axis.



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8 (a) Calculate the size of angle x.

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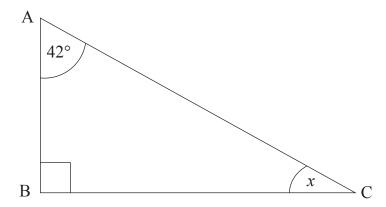
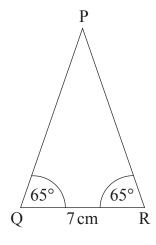


diagram not drawn accurately

Answer \_\_\_\_\_ ° [2]

**(b)** Make an accurate drawing of the triangle sketched below.



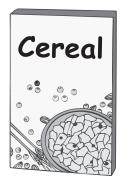
 $Q \times$  [3]

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9 A machine fills boxes of breakfast cereal.

Each box should weigh 375 g.

Jason takes 100 boxes and tests the accuracy of the machine by weighing them.



Weight (g)	Less than 375	Exactly 375	More than 375
Number of boxes	9	58	33

(a) What is the probability that one of the boxes taken by Jason weighs less than 375 g?

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

**(b)** The machine fills 5000 boxes.

Calculate the number of boxes you would expect to weigh less than 375 g.

Answer [2]



10 Rewrite 4 + x = 9 - y to make y the subject.

Give your answer in its simplest form.

Answer  $y = ____ [2]$ 

11

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33 cm 54 cm

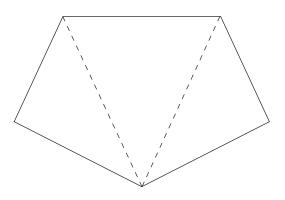
The two rectangles above have the same area.

Using estimation, work out an estimate for the length, L, of the second rectangle.

Answer L= \_\_\_\_ cm [2]

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**12** 



(a) (i) What is the total of all the angles in the three triangles shown?

Answer \_\_\_\_\_ ° [1]

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(ii) What is the sum of the interior angles of a five-sided polygon?

Answer \_\_\_\_\_ ° [1]

**(b)** What is the sum of the interior angles of a seven-sided polygon?

Answer \_\_\_\_\_ ° [2]

13 Solve

$$8x < 6x + 7$$

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



Γ	14	(a)	Write the binary number 10101 as a decimal number.		
		(b)	Write the decimal number 26 as a binary number.	Answer	[1]
				Answer	[1]
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(a) Describe fully the single transformation which maps triangle T onto triangle Q.

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

**(b)** On the grid, draw the image of triangle **T** after a translation  $\begin{pmatrix} 2 \\ -5 \end{pmatrix}$ . [2]



16 A six-sided dice is rolled 800 times.

The table below shows the relative frequency of scoring a six after different numbers of rolls.

Number of rolls	Relative frequency of a six
100	0.3
200	0.26
300	0.27
500	0.23
800	0.25

(a) How many times was a six scored after 300 rolls?

Show how you obtained your answer.

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

**(b)** How many sixes would you expect to get if a **fair** six-sided dice was rolled 300 times?

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

THIS IS THE END OF THE QUESTION PAPER

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