



General Certificate of Secondary Education
January 2020

Centre Number

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Candidate Number

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Mathematics

Unit M6 Paper 1
(Non-Calculator)
Foundation Tier



[GMC61]

GMC61

WEDNESDAY 15 JANUARY, 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 fifteen** 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.

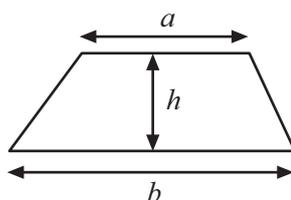
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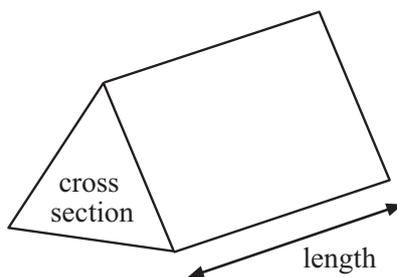
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Formula Sheet

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



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



1 Each term, a letter is sent home if students are absent for **more than** 20% of days.

Here is Peter's attendance record for Year 12

How many letters were sent home for Peter?

You **must show** all your working.

Autumn Term	70 Days	15 Days Absent
Spring Term	54 Days	4 Days Absent
Summer Term	26 Days	6 Days Absent

Answer _____ letters [3]

[Turn over



2 A sequence is formed using the rule:

“Find the next term by adding the previous two terms”

Use this rule to complete the sequences below.

(a) 1, 7, _____, _____, _____ [1]

(b) 3, -5, _____, _____, _____ [1]

(c) x , 4, _____, _____, _____ [1]



3 240 people are at the cinema.

There are 150 children.

$\frac{3}{5}$ of the children are girls.

$\frac{2}{3}$ of the adults are male.

Cara says that altogether there are more females at the cinema.

Is she correct?

Show all your working clearly.

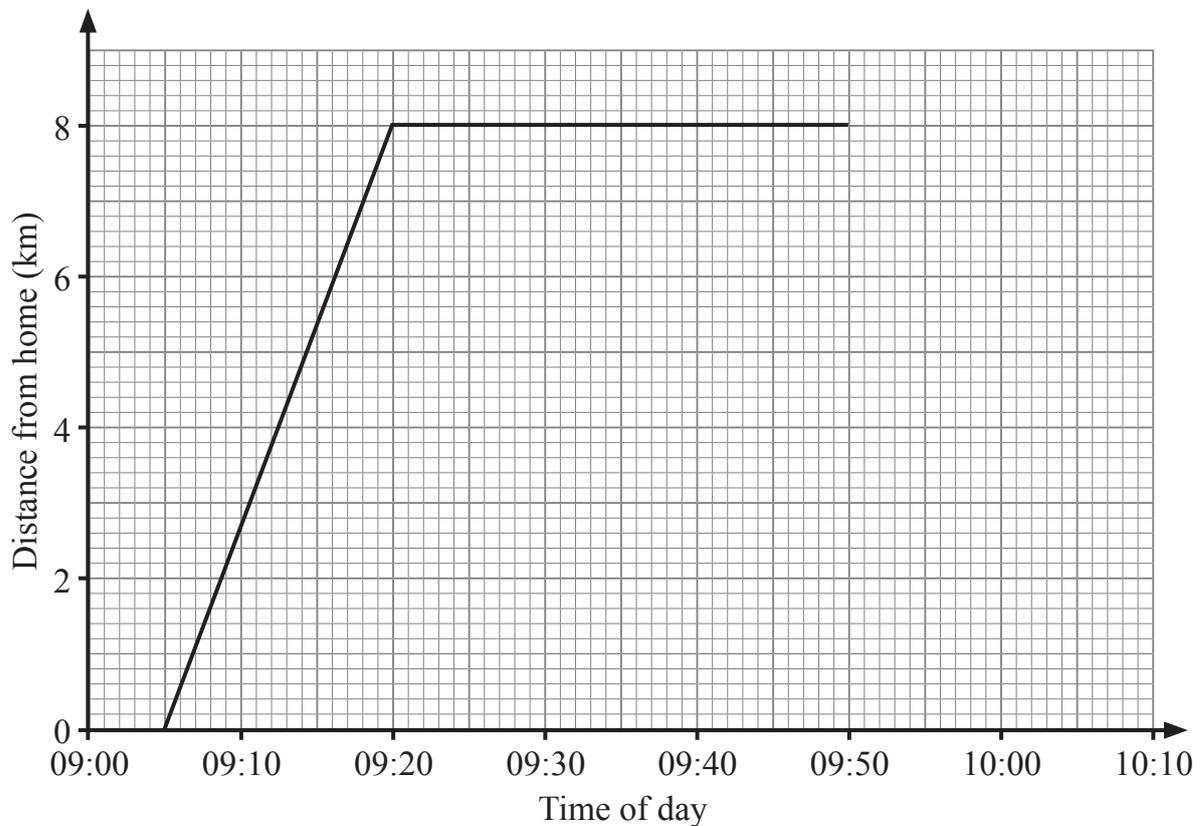


Answer _____ because _____ [4]

[Turn over



- 4 Seb cycles from his home to his piano teacher's house on Saturday morning.
He stays there for 30 minutes and then returns directly home.



- (a) At what time did Seb leave his home?

Answer _____ [1]

- (b) How long did Seb take to get to his teacher's house?

Answer _____ minutes [1]

Seb arrived home at 10:03

- (c) Complete the distance–time graph.

[1]



(d) What distance did Seb travel in total?

Answer _____ km [1]

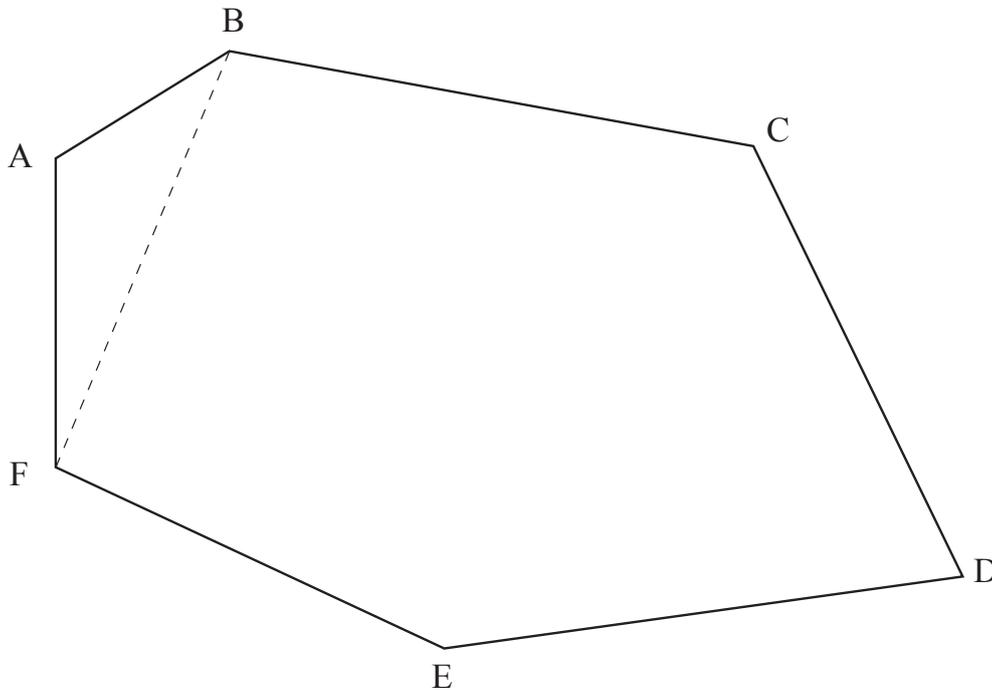
(e) Did Seb travel home at a faster or slower speed?

Explain your answer clearly.

Answer _____ because _____

_____ [1]

5 Polygon ABCDEF may be divided into triangles. One triangle is shown.



Use triangles to work out the sum of the interior angles of the polygon ABCDEF.

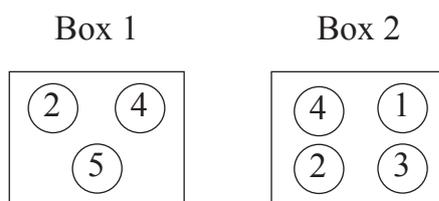
You **must** show your working.

Answer _____ ° [2]

[Turn over



6



There are two boxes of counters.

Each counter has a number on it as shown.

Mike takes one counter at random from Box 1 and then one counter at random from Box 2

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

		Box 2			
		1	2	3	4
Box 1	2	(2, 1)	(2, 2)		
	4	(4, 1)			
	5				

[2]

(b) What is the probability that Mike takes a counter with the same number on it from each box?

Answer _____ [1]



(c) The numbers on the counters taken are **multiplied**.

What is the probability of this multiplication giving an **even** number?

Answer _____ [1]

(d) On another day, Laura takes one counter from each box and **multiplies** the numbers together.

She replaces the counters and does the same thing again for a total of 30 times.

How many times would you expect her to get an **odd** number answer?

Answer _____ [3]

[Turn over



7 Estimate the value of $\frac{593}{4.1 \times 9.7}$

Show all your working.

Answer _____ [2]

8 The prize money in a golf tournament is divided between the three golfers who finish first, second and third in the ratio 7 : 4 : 3

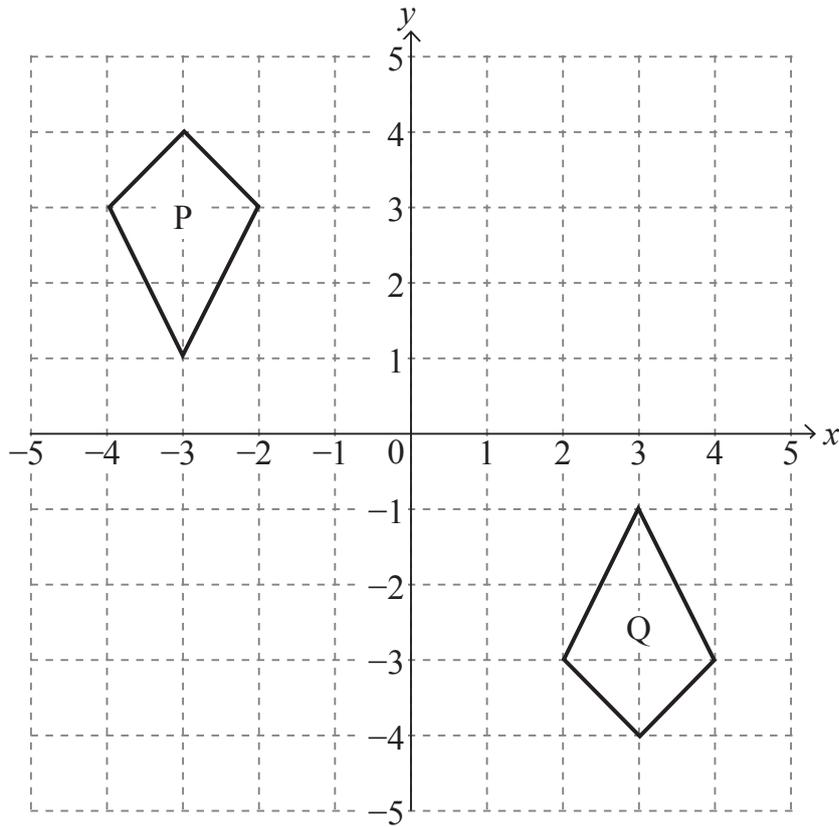
What **fraction** of the prize money does each of the first three golfers receive?

Write each fraction in its simplest form.

Answer 1st _____ 2nd _____ 3rd _____ [3]



9



(a) Describe fully the single transformation which would move shape P to shape Q.

Answer _____ [3]

(b) Translate shape P by 2 units to the right and 5 units down.

Label the image T. [1]

(c) Describe fully the single transformation which would move shape T back to shape P.

Answer _____ [2]

[Turn over



10 Simplify the following.

(a) $4y^3 \times 3y^4$

Answer _____ [1]

(b) $(m^4)^5$

Answer _____ [1]

11 (a) Solve the inequality $6y + 5 \geq 2$

Answer _____ [2]

(b) Write down the smallest **integer** value of y which satisfies the inequality

$$6y + 5 \geq 2$$

Answer $y =$ _____ [1]



12 (a) Write 25 as a binary number.

Answer _____ [1]

(b) Write the binary number 1101001 in decimal form.

Answer _____ [1]

13 Make m the subject of the formula $H = mr + s$

Answer $m =$ _____ [2]

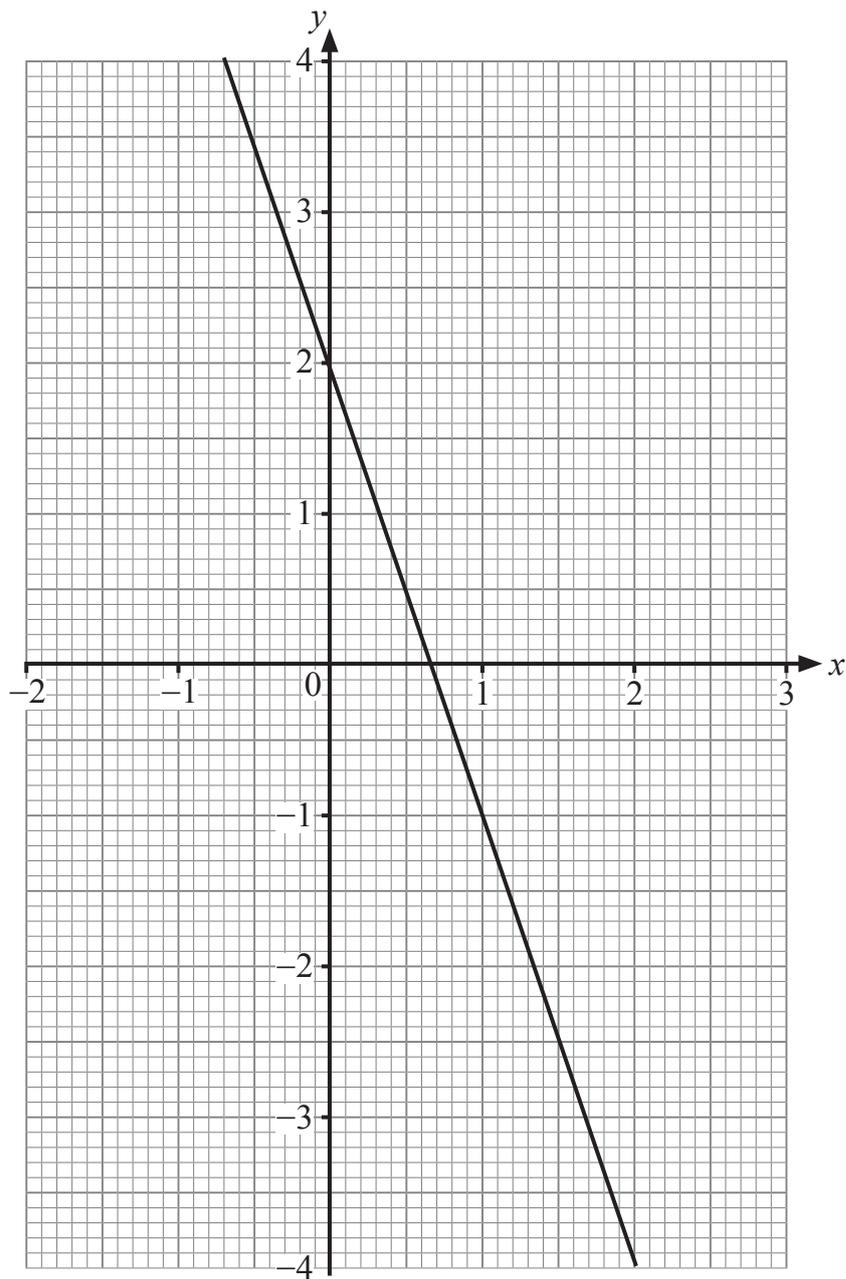
14 Two fair dice are rolled.

Make a list of all the ways it is possible to get a total score of 7 on the two dice.

Answer _____ [2]

[Turn over





By drawing a suitable line on the grid opposite solve the simultaneous equations

$$y = 2x - 2$$

$$y = -3x + 2$$

Answer $x =$ _____ $y =$ _____ [4]

THIS IS THE END OF THE QUESTION PAPER



DO NOT WRITE ON THIS PAGE

For Examiner's use only	
Question Number	Marks
1	
2	
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Total Marks	
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Examiner Number

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