

## GCSE (9–1) Mathematics

J560/01 Paper 1 (Foundation Tier)

Thursday 25 May 2017 – Morning

Time allowed: 1 hour 30 minutes



**You may use:**

- A scientific or graphical calculator
- Geometrical instruments
- Tracing paper



First name										
Last name										
Centre number						Candidate number				

### INSTRUCTIONS

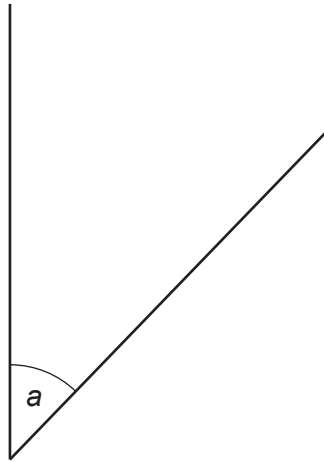
- Use black ink. You may use an HB pencil for graphs and diagrams.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Read each question carefully before you start to write your answer.
- Where appropriate, your answers should be supported with working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided.
- Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the barcodes.

### INFORMATION

- The total mark for this paper is **100**.
- The marks for each question are shown in brackets [ ].
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- This document consists of **20** pages.

Answer **all** the questions.

1 (a) (i) Measure angle *a*.



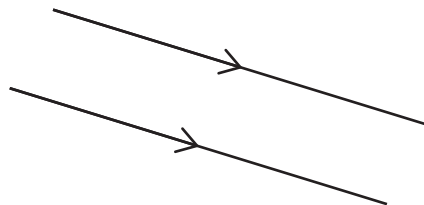
(a)(i) ..... ° [1]

(ii) Write down the mathematical name of this type of angle.

(ii) ..... [1]

(b) Choose one of these words to complete the following sentence.

perpendicular      vertical      parallel      horizontal



These are ..... lines. [1]

2 (a) Use one of these symbols  $<$ ,  $>$  or  $=$  to make each statement true.

(i)  $17.6 \dots\dots\dots 17.06$  [1]

(ii)  $0.9 \dots\dots\dots \frac{45}{50}$  [1]

(b) Round 184 329 to the nearest hundred.

(b) ..... [1]

(c) Write  $\frac{5}{8}$  as a decimal.

(c) ..... [1]

3 Here is a list of numbers.

11      27      81      21      41      42      23      39      45

From this list, write down

(a) the even number,

(a) ..... [1]

(b) the square number,

(b) ..... [1]

(c) all the prime numbers.

(c) ..... [2]

4 Karen made 40 cakes.

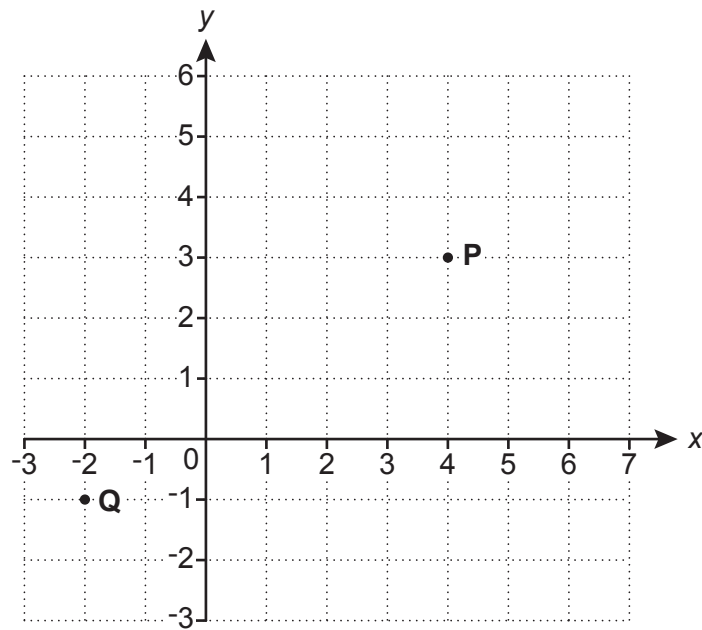
She gives  $\frac{1}{5}$  of the cakes to Andrew.

She gives 10% of the 40 cakes to Chris.

What fraction of the 40 cakes does she have left?

..... [3]

5 Points **P** and **Q** are shown on this grid.



(a) (i) Write down the coordinates of point **P**.

(a)(i) (..... , .....) [1]

(ii) Write down the coordinates of point **Q**.

(ii) (..... , .....) [1]

(b) Plot point **R** at (3, -2). [1]

(c) Draw the line  $y = 3$  on the grid. [1]

- 6 Work out 17% of 54.  
Give your answer correct to 1 decimal place.

..... [3]

- 7 (a) Simplify.

$$7t - 6u + 5t - 4u$$

(a) ..... [2]

- (b) Factorise.

$$5v + 20w$$

(b) ..... [1]

- (c) Solve by factorising.

$$x^2 + 10x + 21 = 0$$

(c)  $x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [3]

- 8 Apple crumble is made using these ingredients.

<b>Apple crumble</b>	
<b>Serves 6 people</b>	
550 g	apple
200 g	sugar
120 g	flour
30 g	butter

- (a) Susumu makes apple crumble to serve 12 people.

How much flour should he use?

(a) ..... g [1]

- (b) Natalie makes apple crumble for 2 people.

How much butter should she use?

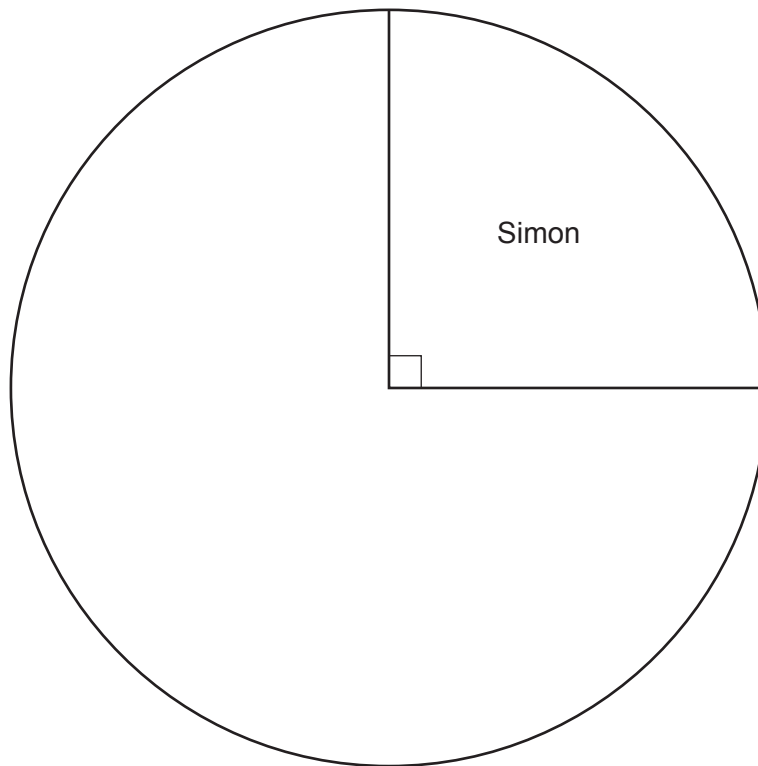
(b) ..... g [1]

- (c) Abena has 1.3 kg of apples and plenty of the other ingredients.

Can she make apple crumble for 15 people?  
Explain how you got your answer.

..... [4]

- 9 Jorge recorded the scorers of 120 goals.  
He started to draw a pie chart to show the results.



- (a) How many goals did Simon score?

(a) ..... [1]

- (b) The table shows the **other** players who scored goals.

Name of scorer	Number of goals	Angle of sector
Wayne	48	144°
Harry	5	
Obi		72°
Antony		

- (i) Complete the table. [3]
- (ii) Complete the pie chart. [2]



- 10 The pass mark for a test is 86%.  
Steve scores 52 out of 61 marks.

Does he pass the test?  
Explain your answer.

.....  
..... [2]

- 11 320 people go on a coach trip.  
Each coach holds 53 people.

Gary says 6 coaches are needed.

Is Gary correct?  
You must show your working.

.....  
..... [2]

- 12 Trish and Marc both cycled the same distance.  
Trish completed the distance in 2 hours.  
Her average speed was 16 miles per hour.  
Marc completed the distance in 4 hours.

Find Marc's average speed for the journey.

..... mph [2]

13 (a) The ratio 20 minutes to 1 hour can be written in the form  $1:n$ .

Find the value of  $n$ .

(a)  $n = \dots\dots\dots$  [1]

(b) The scale on a map is  $1:25\,000$ .

How many kilometres on the ground is represented by 6 cm on the map?

(b)  $\dots\dots\dots$  km [3]

(c) Kiri and Peter share some sweets in the ratio  $6:7$ .

What fraction of the sweets does Kiri receive?

(c)  $\dots\dots\dots$  [1]

14 (a) Write 543 000 in standard form.

(a) ..... [1]

(b) Write  $6.3 \times 10^{-2}$  as an ordinary number.

(b) ..... [1]

(c) Pierre is given this question.

<p>Work out. <math>61\,000 \times 4\,000</math> Give your answer in standard form.</p>
--

Pierre's answer is  $24.4 \times 10^7$ .

Is Pierre correct?  
Explain your answer.

.....  
..... [1]

- 15 Mr and Mrs Thomas buy tickets for themselves and their four children.  
The cost of an adult ticket is £7 more than the cost of a child ticket.  
The total cost of the **six** tickets is £86.

Work out the cost of an adult ticket.

£ ..... [5]

16 The scale diagram shows the positions of town A and town B.

Scale: 1 cm represents 10 miles

B •

A •

Lucy's house is nearer to town A than to town B.  
Her house is exactly 50 miles from town B.

On the scale diagram show all the possible positions of Lucy's house.  
You must show all your construction lines.

[5]

- 17 At the start of 2014 Priya's house was worth £240 000.  
The value of her house increased by 5% every year.

Work out the value of her house at the start of 2017.

£ ..... [3]

- 18 (a) Write 490 as the product of its prime factors.

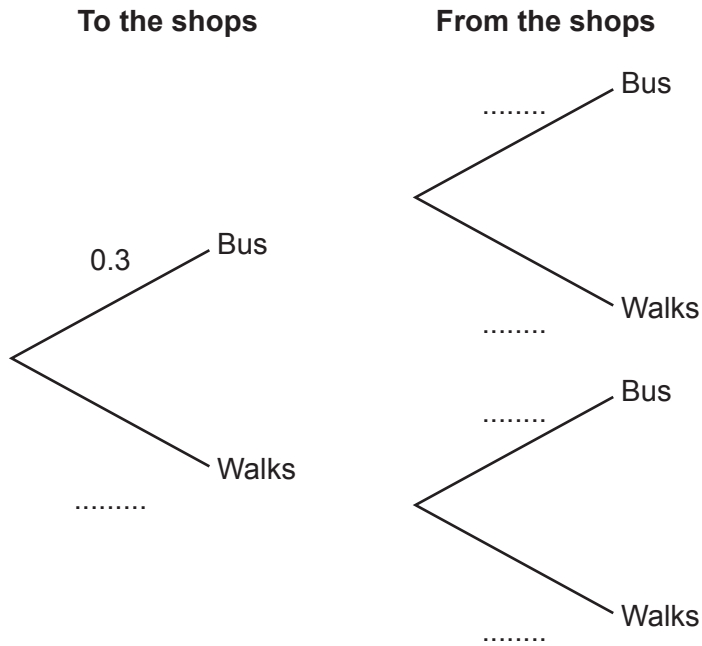
(a) ..... [2]

- (b) Buses to Ayton leave the station every 25 minutes.  
Buses to Bleeford leave the station every 40 minutes.  
Buses to both places leave at 9am.

What is the next time buses to Ayton and Bleeford leave the station together?

(b) ..... [4]

- 19 Kirsty either travels by bus or walks when she visits the shops. The probability that she catches the bus **to** the shops is 0.3. The probability that she catches the bus **from** the shops is 0.8.



- (a) Complete the tree diagram. [2]
- (b) Show that the probability that Kirsty walks at least one way is 0.76.

..... [2]

20 Mo's tyre pressure gauge shows a reading which is 12% higher than the actual pressure.

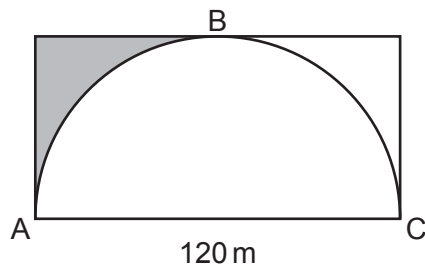
What is the actual pressure when Mo's gauge shows 38.64?

..... [3]



- 21 The diagram shows a semi-circle inside a rectangle of length 120 m. The semi-circle touches the rectangle at A, B and C.

Not to scale



Calculate the **perimeter** of the shaded region.  
Give your answer correct to 3 significant figures.

..... m [5]

22 A, B, C and D are four towns.

B is 25 kilometres due East of A.  
 C is 25 kilometres due North of A.  
 D is 45 kilometres due South of A.



Not to scale

C ×

A ×

×  
B

D ×

(a) Work out the bearing of B from C.

(a) .....° [2]

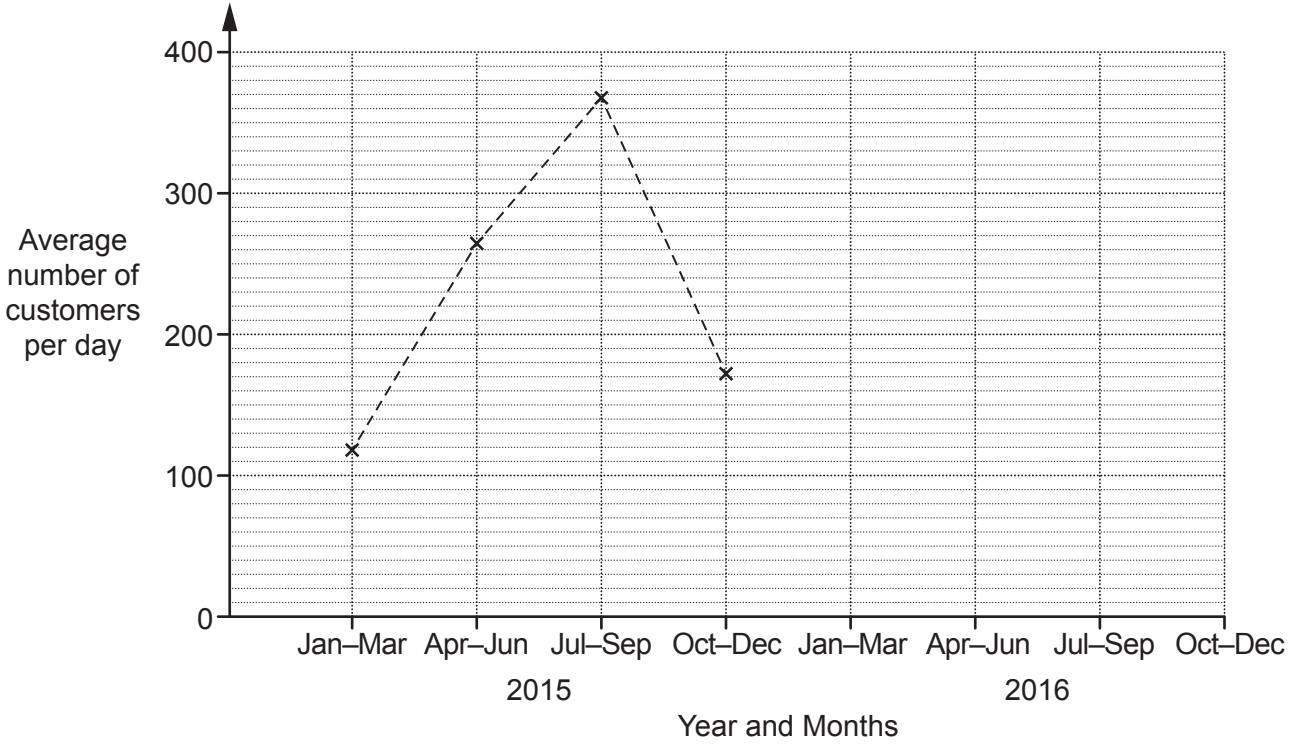
(b) Calculate the bearing of D from B.

(b) .....° [4]

23 The table shows the average number of customers per day entering a shop.

	2015				2016			
Months	Jan-Mar	Apr-Jun	July-Sep	Oct-Dec	Jan-Mar	Apr-Jun	July-Sep	Oct-Dec
Average number of customers per day	119	264	368	172	130	304	381	192

(a) Complete the time series graph below.



[2]

(b) Make two different comments comparing the number of customers entering the shop in 2015 and 2016.

Comment 1 .....

.....

.....

Comment 2 .....

.....

.....

[2]

24 Each week Dan drives two routes, route X and route Y.

One week he drives route X three times and route Y twice.  
He drives a total of 134 miles that week.

Another week he drives route X twice and route Y five times.  
He drives a total of 203 miles that week.

(a) Find the length of each route.

(a) route X = ..... miles  
route Y = ..... miles [5]

(b) State an assumption that has been made in answering part (a).

.....  
..... [1]

**END OF QUESTION PAPER**



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## GCSE (9–1) Mathematics

J560/02 Paper 2 (Foundation Tier)

**Thursday 8 June 2017 – Morning**

**Time allowed: 1 hour 30 minutes**



**You may use:**

- Geometrical instruments
- Tracing paper

**Do not use:**

- A calculator



First name									
Last name									
Centre number						Candidate number			

### INSTRUCTIONS

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1 George recorded all the different types of tree in a wood.

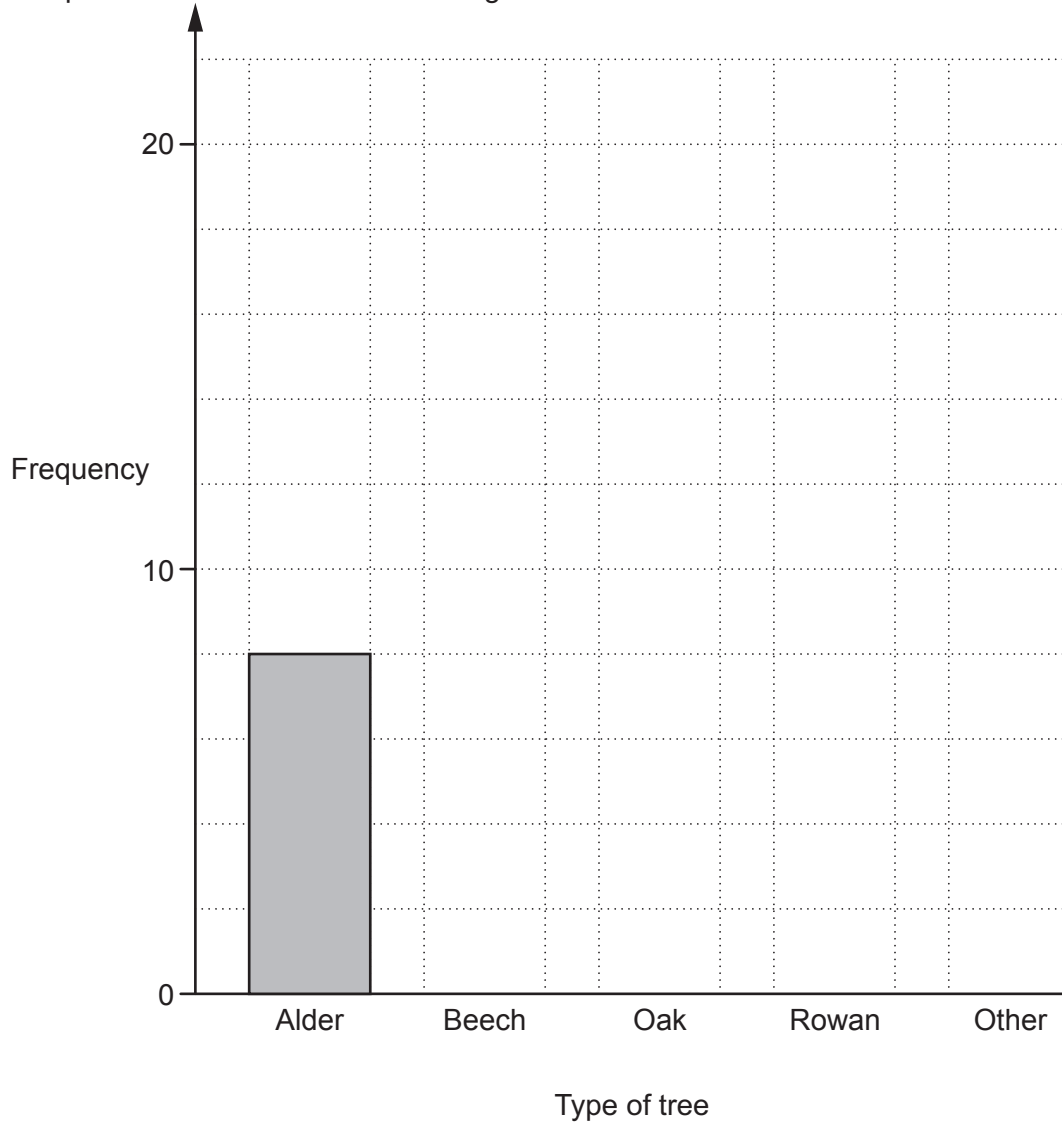
(a) His results are shown in this table.

Complete the table.

Type of tree	Tally	Frequency
Alder	III	8
Beech		15
Oak	III	18
Rowan	I	
Other		13

[2]

(b) Complete the bar chart to show George's results.



[2]

(c) George found 60 trees altogether in the wood.

What percentage of the trees were oak trees?

(c) ..... % [2]

2 (a) Work out.

(i)  $6\frac{1}{2} + \frac{3}{4}$

(a)(i) ..... [1]

(ii)  $\frac{4}{7}$  of 63

(ii) ..... [2]

(b) Show that  $\frac{4}{5}$  is bigger than  $\frac{7}{9}$ .

.....

..... [2]

(c) Find a fraction which is bigger than  $\frac{1}{5}$  and smaller than  $\frac{1}{4}$ .

(c) ..... [2]

- 3 (a) Nathan works out  $23 \times 12.4$  without a calculator.

This is Nathan's working.

$10 \times 12.4 = 12.40$ $20 \times 12.4 = 24.80$ $3 \times 12.4 = 37.2$ $23 \times 12.4 = 24.80 + 37.2 = 62$
---

Nathan's working is incorrect.

Explain the error that Nathan has made and work out the correct answer.

.....

.....

..... [3]

- (b) Four friends buy cinema tickets using this offer.

<p><b>Cinema tickets</b></p> <p>Buy 3 tickets and get a ticket <b>free</b></p>
--

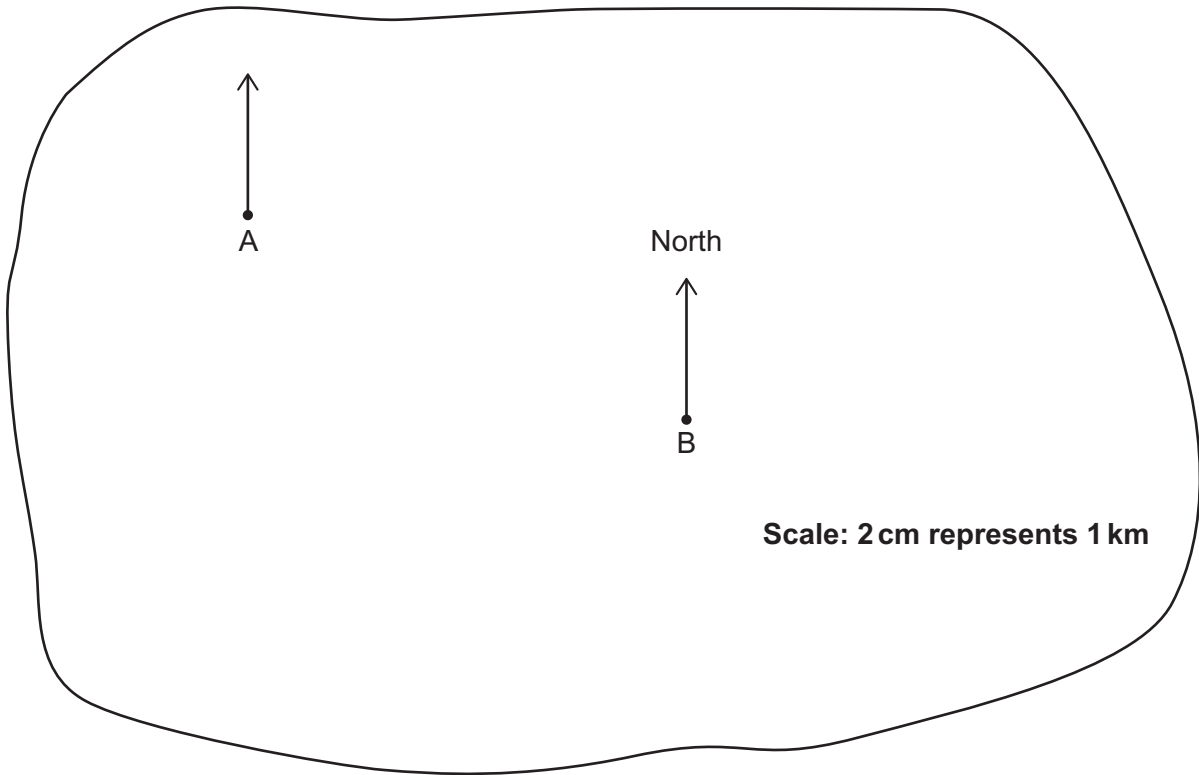
They **each** pay £6.45.

How much does a ticket cost?

(b) £ ..... [3]



4 A and B are two farms on this map.



Use the map to complete these sentences.

(a) (i) The distance from A to B is ..... km. [2]

(ii) The bearing of B from A is ..... °. [1]

(b) C is another farm.  
C is 2.5 km from B on a bearing of 230°.

Mark and label the position of C on the map with a cross. [2]

5 (a) Multiply out.

$$3x(x + 2y)$$

(a) ..... [2]

(b) Solve.

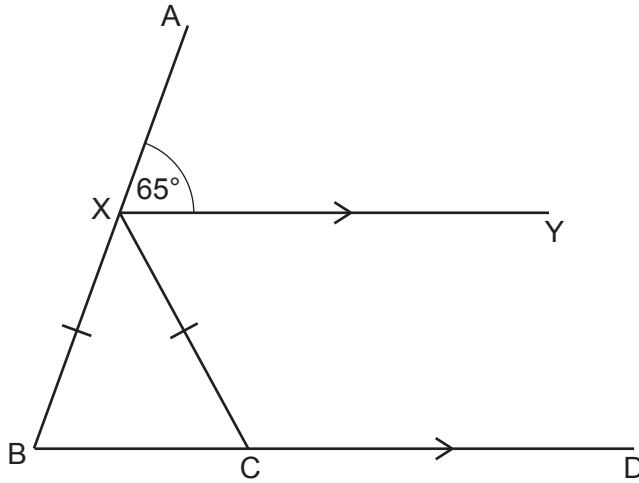
(i)  $7x = 28$

(b)(i)  $x =$  ..... [1]

(ii)  $\frac{x}{3} - 2 = 9$

(ii)  $x =$  ..... [2]

- 6 XY and BD are parallel lines.  
 X is a point on AB and C is a point on BD.  
 $XB = XC$ .



Not to scale

- (a) Complete this sentence.

Angle  $XBC = 65^\circ$  because ..... [1]

- (b) Work out angle  $BXC$ .  
 Give a reason for each angle you work out.

(b) .....  $^\circ$  [4]

- 7 There are **20 coins** in a pot.  
The coins are 1p, 2p, 5p and 10p.

A coin is taken at random from the pot.

- The probability that it is a 1p coin is  $\frac{3}{10}$ .
- The probability that it is a 2p coin is  $\frac{2}{5}$ .

The total value of the coins in the pot is 57 pence.

Work out how many of each type of coin there are in the pot.

1p ..... , 2p ..... , 5p ..... , 10p ..... [4]

8 (a) Evaluate.

(i)  $\sqrt{121}$

(a)(i) ..... [1]

(ii)  $4^{-2}$

(ii) ..... [1]

(b) Work out.

$(9 - 3 \times 2)^2$

(b) ..... [2]

(c) Fill in the power.

$5^{\boxed{\phantom{000}}} = 125$

[1]

9 Lillian works 7 hours each day for 5 days a week. She earns £420 each week.

(a) How much does she earn per hour?

(a) £ ..... [3]

(b) Lillian decides that she is going to work 7 hours each day for **only 4 days** a week. Her earnings are to be reduced by 20%. Lillian thinks that this reduction is reasonable.

(i) Explain why a reduction of 20% is reasonable.

.....  
..... [1]

(ii) How much will Lillian earn working 4 days a week?

(b)(ii) £ ..... [2]



11 (a) These are the first five terms in a Fibonacci sequence.

1 3 4 7 11

Write down the next two terms in the sequence.

(a) ..... [1]

(b) In a different Fibonacci sequence the fourth term is 31 and the fifth term is 50.

Work out the first term in this sequence.

(b) ..... [2]

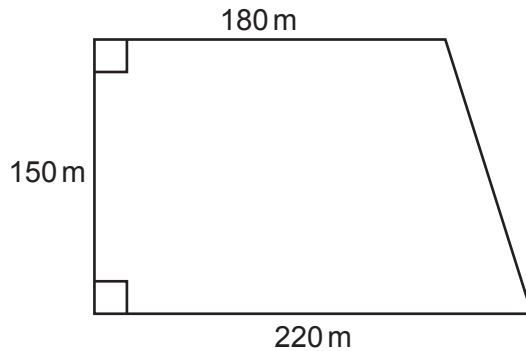
(c) The second and third terms in the following Fibonacci sequence are  $x$  and  $y$ .

Write down algebraic expressions for the first, fourth and fifth terms.

.....  $x$   $y$  ..... [3]



- 12 A farmer has a field that is in the shape of a trapezium. He measures the field so that he can work out the area. He puts his measurements on this diagram of the field.



Not to scale

- (a) The farmer has rounded his measurements to two significant figures.

Give a reason why he may have done this.

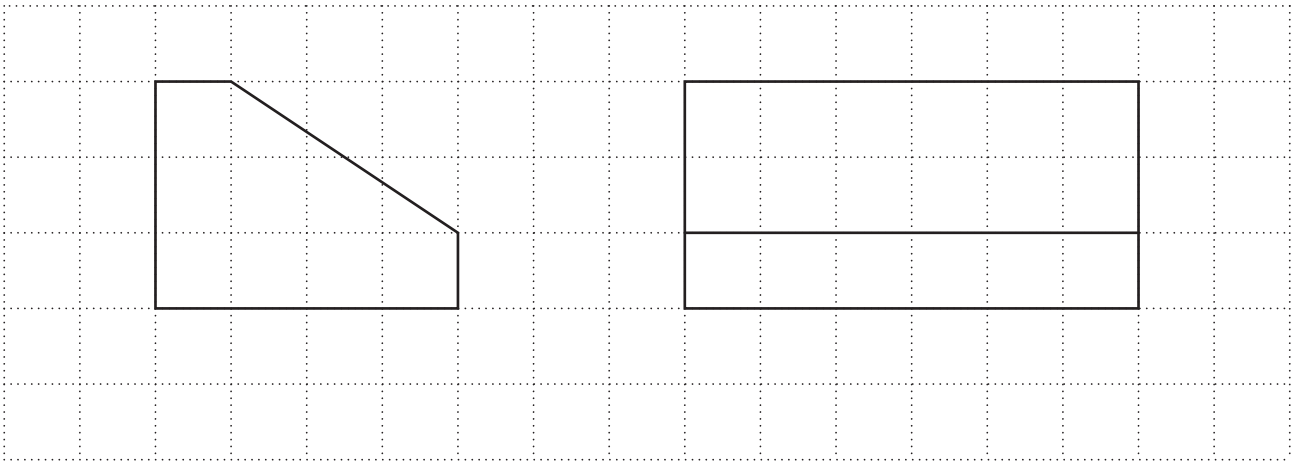
.....  
 ..... [1]

- (b) The field produces 6400 kilograms of wheat per hectare. One hectare is  $10\,000\text{m}^2$ .

Work out how many kilograms of wheat the field produces.

(b) ..... kg [5]

13 The front and side elevations of a prism, with a pentagon as its cross section, are drawn on this one-centimetre square grid.



(a) Draw accurately the plan of the prism on the grid below.



[2]

(b) Calculate the volume of the prism.

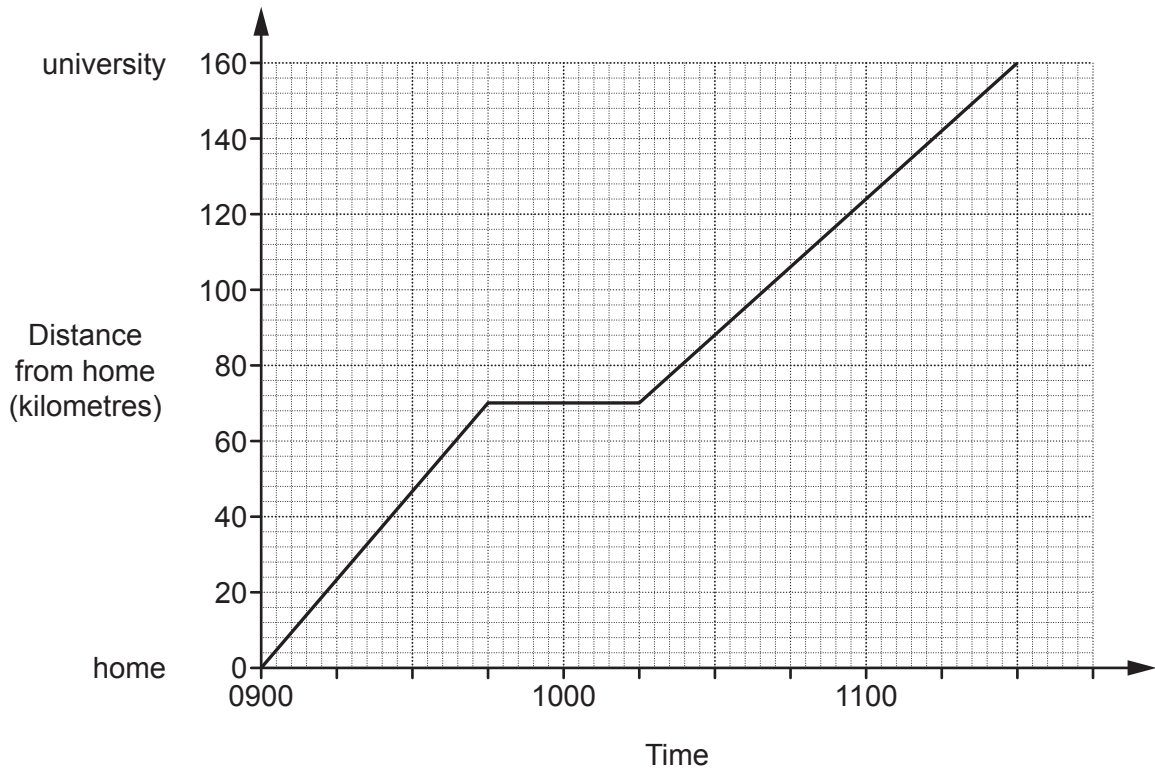
(b) ..... cm<sup>3</sup> [3]

14 Work out  $\frac{2}{15} \times \frac{15}{22}$ .

Give your answer in its lowest terms.

..... [2]

15 The graph shows Mia's journey from her home to university.



Calculate Mia's average speed for the whole journey.

..... km/h [3]

- 16 Last year, Katie earned £16 200.  
Her total loan repayments were £6400.

Katie estimates that the ratio of her loan repayments to her earnings is approximately 3 : 8.

Is she correct?  
Show your reasoning.

..... [3]

17 (a) Rearrange the equation to make  $x$  the subject.

$$y = 7x - 3$$

(a)  $x = \dots\dots\dots$  [2]

(b) Factorise.

(i)  $x^2 - xy$

(b)(i)  $\dots\dots\dots$  [1]

(ii)  $x^2 + 8x + 12$

(ii)  $\dots\dots\dots$  [2]

18 Jenny played four games of golf.

For these games her modal score was 76 and her mean score was 75.

Her range of scores was 10.

What were her scores for the four games?

$\dots\dots\dots$   $\dots\dots\dots$   $\dots\dots\dots$   $\dots\dots\dots$  [4]

19 The population of a village is in the following ratios.

- men : children = 11 : 3
- women : children = 5 : 2

(a) Find the ratio men : women.  
Give your answer in its simplest form.

(a) ..... : ..... [2]

(b) There are 36 children in the village.  
Find the total population of the village.

(b) ..... [3]

- 20 George is the manager of a shoe shop. He samples 50 of his customers and asks them about the **one** style of shoe they would buy next. The table shows his results.

Style of shoe	Number of customers
Laced shoes	18
Boots	15
Sandals	8
Trainers	5
Other	4

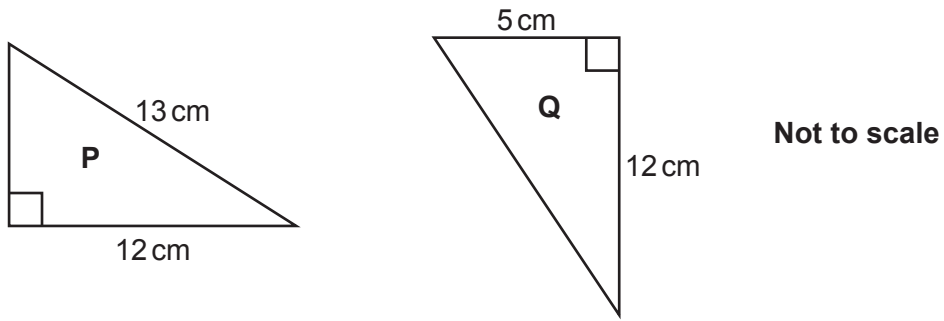
George buys 1000 pairs of shoes with the number of each style based on his survey results.

How many pairs of sandals should he buy?

Write down any assumption you make about his sample.

.....  
..... [3]

21 Triangles **P** and **Q** are right-angled.



(a) Show that the two shorter sides in triangle **P** have the same lengths as the two shorter sides in triangle **Q**. [3]

(b) Explain why the two triangles are congruent.

.....  
..... [1]

**END OF QUESTION PAPER**

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## GCSE (9–1) Mathematics

J560/03 Paper 3 (Foundation Tier)

**Tuesday 13 June 2017 – Morning**

**Time allowed: 1 hour 30 minutes**



**You may use:**

- A scientific or graphical calculator
- Geometrical instruments
- Tracing paper



First name									
Last name									
Centre number						Candidate number			

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1 (a) Complete this table of fractions, decimals and percentages.

Fraction		Decimal		Percentage
$\frac{1}{2}$	=	0.5	=	50%
	=	0.27	=	
$\frac{4}{5}$	=		=	
	=		=	3%

[3]

(b) Write 45% as a fraction in its simplest form.

(b) ..... [2]

(c) Alan and Brian share a sum of money in the ratio 1 : 4.

What fraction of the money does Alan receive?

(c) ..... [1]

2 Corinne invests £8400 at a simple interest rate of 12% per year.

Work out the value of the investment after 3 years.

£ ..... [3]

- 3 (a) Find the value of  $y$ .

$$5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 = 5^y$$

(a)  $y = \dots\dots\dots$  [1]

- (b) Find the values of  $z$ .

$$z^2 = 196$$

(b)  $z = \dots\dots\dots$  or  $z = \dots\dots\dots$  [2]

- 4 (a) Expand and simplify.

$$5(x - 2) - 2(x - 4)$$

(a)  $\dots\dots\dots$  [2]

- (b) Factorise fully.

$$10x^2 + 6x$$

(b)  $\dots\dots\dots$  [2]

- (c) Simplify.

$$(x^5)^2$$

(c)  $\dots\dots\dots$  [1]

5 (a) Find the value of  $3a + 2b$  when  $a = 16$  and  $b = 7$ .

(a) ..... [2]

(b) Use the formula

$$v = u + at$$

to find the final velocity, when

- the initial velocity is 2 m/s
- the acceleration is  $1.5 \text{ m/s}^2$
- the time is 6 seconds.

(b) .....m/s [2]

(c) Make  $d$  the subject of this formula.

$$c = 7d$$

(c) ..... [1]

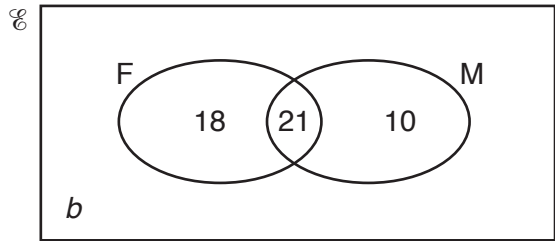
- 6 (a) Henry puts eight counters into a bag. Each counter has a different whole number on it between 1 and 8. He picks a counter at random from the bag and the number is noted.

Choose from the words in the box to complete each sentence.

likely    impossible    certain    evens    unlikely

- (i) It is ..... that he picks a number less than 9. [1]
- (ii) It is ..... that he picks an odd number. [1]

- (b) The Venn diagram shows the number of students who passed their examination in French (F) and those who passed their examination in Mathematics (M). The number of students who did not pass either examination is  $b$ .



- (i) Find the value of  $b$  if the total number of students is 55.

(b)(i)  $b =$  ..... [1]

One of the 55 students is selected at random.

What is the probability that this student

- (ii) passed both French and Mathematics,

(ii) ..... [1]

- (iii) passed exactly one of these two subjects?

(iii) ..... [1]

6

- 7 Hardeep buys 11 identical shirts and 24 identical ties for £403.51.  
The cost of a shirt is £15.65.

Find the cost of a tie.

£ ..... [4]

- 8 (a) Harry needs dollars to go on holiday.  
He can buy \$50 for £40.

How much will \$720 cost at the same rate?

(a) £..... [2]

- (b) Tony returns from holiday with these notes.

Note	Number of notes
€50	2
€20	4
€10	9
€5	12

The exchange rate is £1 = €1.17.

Work out how much he will get in total when he changes these notes.

(b) £..... [4]

9 (a) Round 7.3065 to 2 decimal places.

(a) ..... [1]

(b) Round each number to 3 significant figures.

(i) 408231

(b)(i) ..... [1]

(ii) 0.006 137 02

(ii) ..... [1]

10 (a) Write down the second and third terms of the following two sequences.

(i) Rule : To get the next term **subtract 4** from the previous term.  
First term = 19.

19 ..... [1]

(ii) Rule : To get the next term **multiply** the previous term **by 5** and then **add 3**.  
First term = 7.

7 ..... [1]

(b) Here are the first four terms of another sequence.

5 9 13 17

Write an expression for the *n*th term of this sequence.

(b) ..... [2]



11 (a) Grapes cost £2 per kilogram.

Calculate the cost of 380 g of grapes.

(a) £ ..... [2]

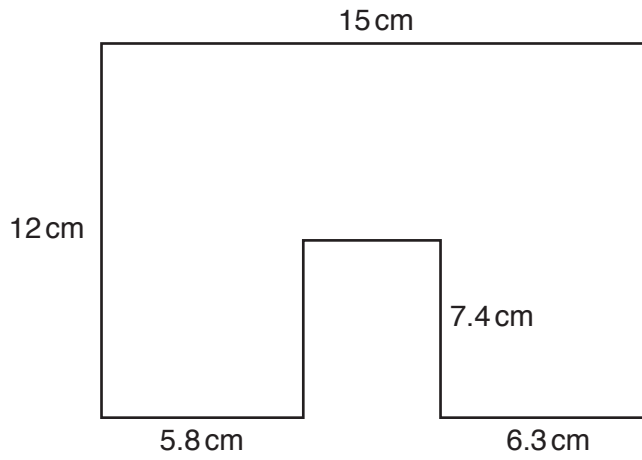
(b) Ruth buys 19 identical tickets for £280.25.

Estimate the cost of one ticket.  
Show your working.

(b) £ ..... [2]

- 12 The shape below is formed from a rectangle measuring 12 cm by 15 cm from which a rectangle of length 7.4 cm has been removed.

Not to scale



Work out the perimeter of the shape.

.....cm [3]

- 13 (a) The mass,  $m$  tonnes, of a girder is 12.7, correct to 1 decimal place.

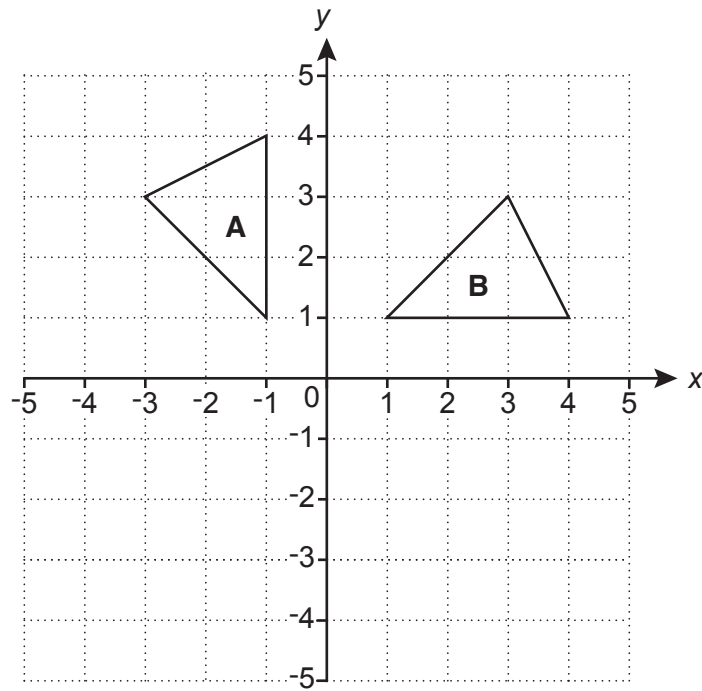
Complete the error interval for the mass,  $m$ .

(a) .....  $\leq m <$  ..... [2]

- (b) The length of a piece of wood is given as 8 metres, correct to the nearest metre.  
The length of a metal rod is given as 8.5 metres, correct to 1 decimal place.

Show that the piece of wood could be longer than the metal rod. [2]

14 Triangle **A** and triangle **B** are drawn on the coordinate grid.



- (a) Translate triangle **A** by vector  $\begin{pmatrix} 3 \\ -5 \end{pmatrix}$ . [2]
- (b) Describe fully the **single** transformation that maps triangle **A** onto triangle **B**. [3]

.....

..... [3]

- 15 Students at a school must choose one subject from Option 1 and one from Option 2. The school offers two languages, French and Spanish.

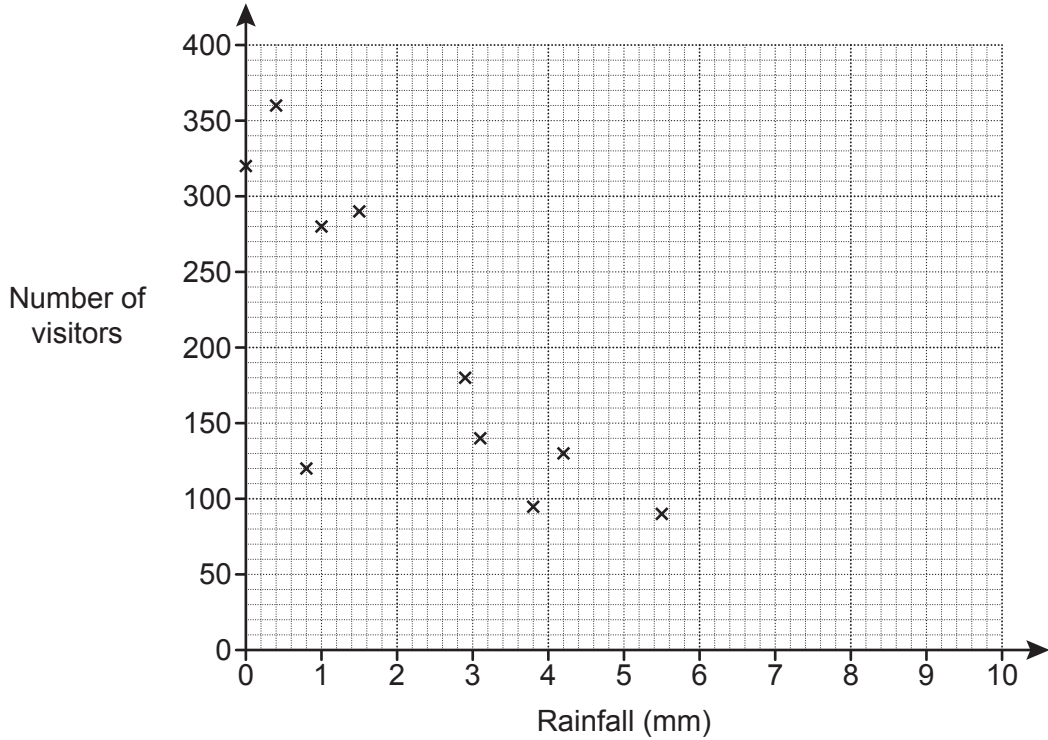
The subjects are given in this table.

Option 1	Option 2
French	Spanish
Art	Geography
Music	History
Economics	

Work out the percentage of all the subject combinations which have exactly one language.

..... % **[4]**

- 16 (a) The owner of a tourist attraction records the amount of rainfall, in millimetres, and the number of visitors each day. The results for 10 days are shown in the scatter diagram.



- (i) Circle the outlier on the scatter diagram. [1]
- (ii) The owner claims that he would expect around 320 visitors on a day with 2 mm of rainfall.

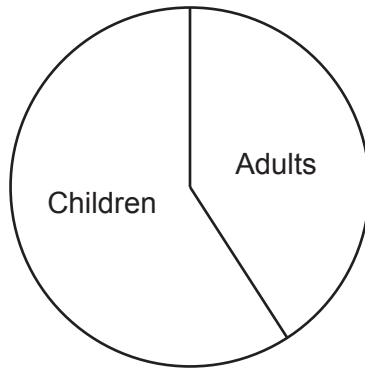
Does the scatter diagram support his statement?  
Explain how you made your decision.

..... [2]

- (iii) Explain why the scatter diagram should not be used to estimate the number of visitors on a day with 9 mm of rainfall.

..... [1]

(b) The pie chart summarises information about the visitors to the tourist attraction on a different day.



Explain why the pie chart cannot be used to work out how many adults visited on that day.

.....

..... [1]

17 (a) The scale of a map is 1 cm represents 25 m.

(i) The length of a path is 240 m.

Work out the length, in centimetres, of the path on the map.

(a)(i) .....cm [1]

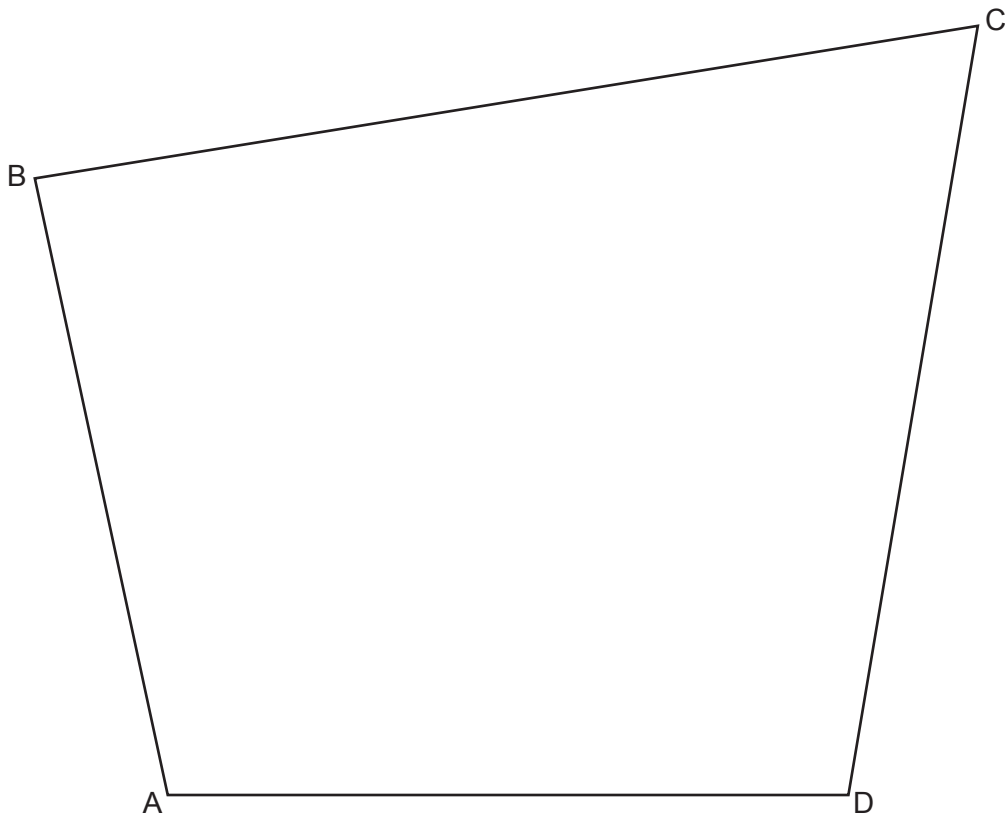
(ii) The scale 1 cm represents 25 m can be written in the form 1 :  $k$ .

Find the value of  $k$ .

(ii)  $k =$  ..... [1]

(b) The scale drawing represents a park.

**Scale: 1 cm represents 25 m**



A new play area must be

- no more than 150 m from B
- closer to AD than to CD.

Construct and shade the region where the play area can be positioned.  
Show all your construction lines.

[5]



- 18** A village has a population of 4200 and a population density of 700 people per km<sup>2</sup>.  
An estate is built next to the village.  
The estate has an area of 2 km<sup>2</sup> and a population density of 800 people per km<sup>2</sup>.

Work out the population density for the village and the estate together.

..... people per km<sup>2</sup> **[4]**

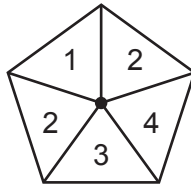
- 19** Two numbers have these properties.

- Both numbers are greater than 6.
- Their highest common factor (HCF) is 6.
- Their lowest common multiple (LCM) is 60.

Find the two numbers.

..... and ..... **[3]**

20 (a) This is a fair 5-sided spinner.



Ciara spins the spinner twice and records the product of the two scores.

(i) Complete the table.

		First spin				
		1	2	2	3	4
Second spin	1	1				
	2			4		
	2					
	3					
	4				12	

[2]

(ii) Find the probability that the product is a multiple of 3.

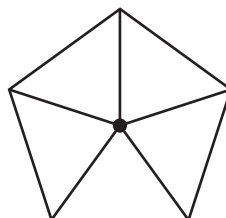
(a)(ii) ..... [2]

(b) Ciara makes a different fair 5-sided spinner. She spins the spinner twice and records the product of the two scores.

Ciara says

The probability that the product is negative is 0.48.

Write numbers on the spinner below so that Ciara's statement is correct.



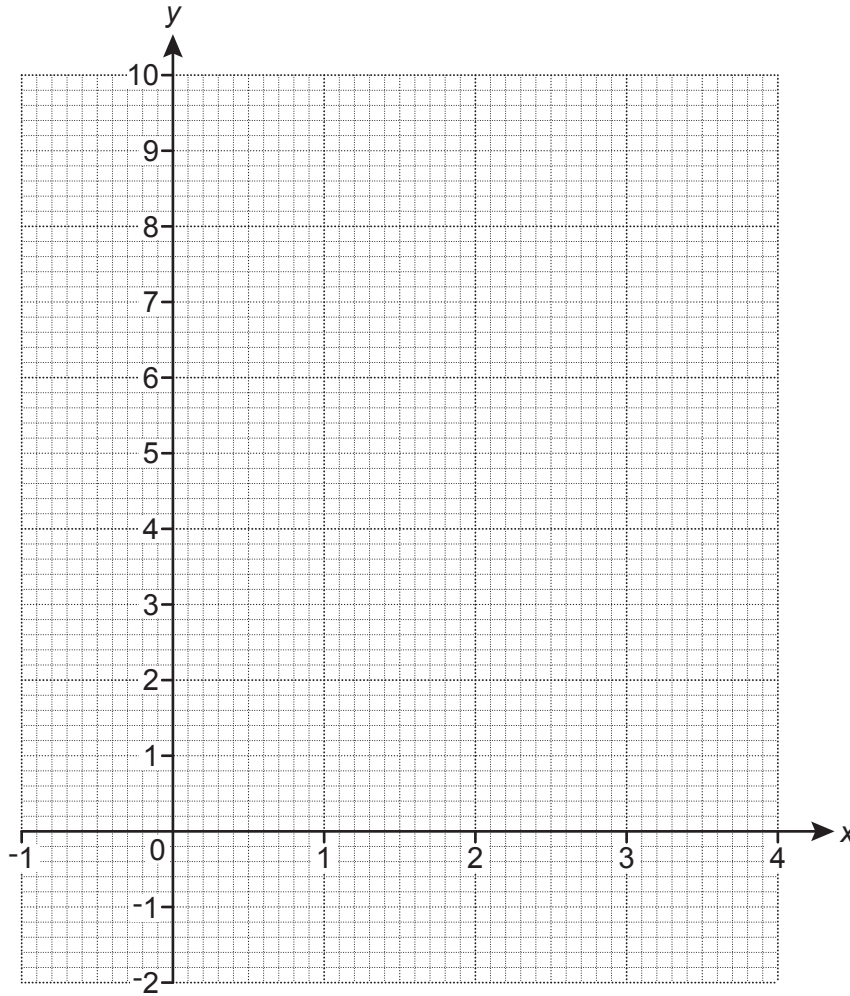
[3]

21 (a) Complete the table for  $y = x^2 - 2x$ .

x	-1	0	1	2	3	4
y	3	0	-1	0	3	

[1]

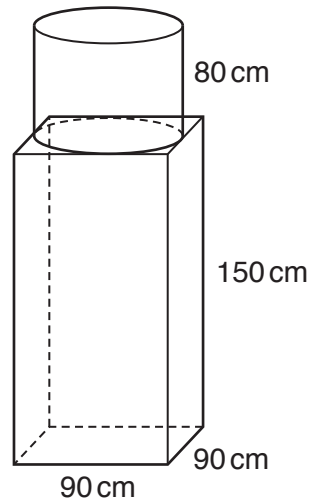
(b) Draw the graph of  $y = x^2 - 2x$  for  $-1 \leq x \leq 4$ .



[2]

(c) Use your graph to solve  $x^2 - 2x = 2$ .

(c) ..... [2]



A sculpture is formed from a cylinder resting on top of a cuboid.  
 The cylinder has radius 45 cm and height 80 cm.  
 The cuboid measures 90 cm by 90 cm by 150 cm.

The sculpture is made of granite.  
 The granite has a density of  $2.7 \text{ g/cm}^3$ .

Calculate the total mass of the sculpture in tonnes.

.....tonnes [5]

**END OF QUESTION PAPER**

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