Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education (9–1)

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

6280182654

MATHEMATICS **0626/05**

Paper 5 (Core) **October/November 2018**

2 hours

Candidates answer on the Question Paper.

Additional Materials: Geometrical instruments
Tracing paper (optional)

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams and graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
Electronic calculators should be used.
If working is required for any question it must be shown below that question.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 96.

This syllabus is regulated for use in England as a Cambridge International Level 1/Level 2 (9–1) Certificate.

This document consists of **18** printed pages and **2** blank pages.

CAMBRIDGE International Examinations

1 Melinda owns The Chatterbox Café.

(a) Leon buys three cakes for £2.95 each, a pot of tea for £1.95 and two coffees for £2.60 each.
He pays with a £20 note.

Work out the change Leon receives.

£ ..... [3]

(b) The price of a biscuit is £1.35 .
Melinda increases the price of the biscuit to £1.50 .

Work out the increase in price as a percentage of the original price.

..... % [3]

(c) Marta works as a kitchen assistant.
Marta's annual salary is £16 380.
She works 39 hours each week for 48 weeks a year.

Calculate the amount that Marta is paid for each hour she works.

£ ..... [3]

(d) Melinda advertises in the newspaper for a cleaner.

The cost of the advert is £7.50, plus £5.50 for the first line and £3.00 for each line after the first line.

(i) Work out how much Melinda pays the newspaper for the advert below.

T	H	E		C	H	A	T	T	E	R	B	O	X		C	A	F	E			
C	L	E	A	N	E	R		N	E	E	D	E	D		A	S	A	P			
1	5		H	O	U	R	S		A		W	E	E	K		£	8		p	/	h
S	O	M	E		W	E	E	K	E	N	D		W	O	R	K	I	N	G		
U	N	I	F	O	R	M		P	R	O	V	I	D	E	D						
T	E	L		T	H	E		C	A	F	E		O	N		6	7	6	4	5	3

£ ..... [3]

(ii) Write down an expression for the total cost, in pounds, for an advert which has n lines.
Give your answer in terms of n, in its simplest form.

..... [3]

2 Jacob is a farmer who has cows, sheep and pigs.

(a) The ratio cows : sheep : pigs is 9 : 15 : 8.
He has 144 cows.

Show that he has 240 sheep and 128 pigs.

[3]

(b) The area of the farm is measured in acres.
Jacob allows the following number of acres for each animal.

- $1\frac{1}{2}$ acres for each cow
- $\frac{1}{5}$ of an acre for each sheep
- $\frac{1}{12}$ of an acre for each pig

Work out the total number of acres needed for his animals.
Give your answer correct to the nearest acre.

..... acres [4]

(c) It costs Jacob 32 pence to produce one litre of milk.
He makes 15% profit on each litre.

Work out the selling price for each litre of milk.

..... p [2]

(d) On average, **each cow** produces 7800 litres of milk **each year** (365 days).
The tanker that collects milk from the farm has a capacity of 20 500 litres.
Jacob wants to have enough cows so that the tanker is filled with milk each day.

Work out the number of cows that Jacob would need to have on his farm.

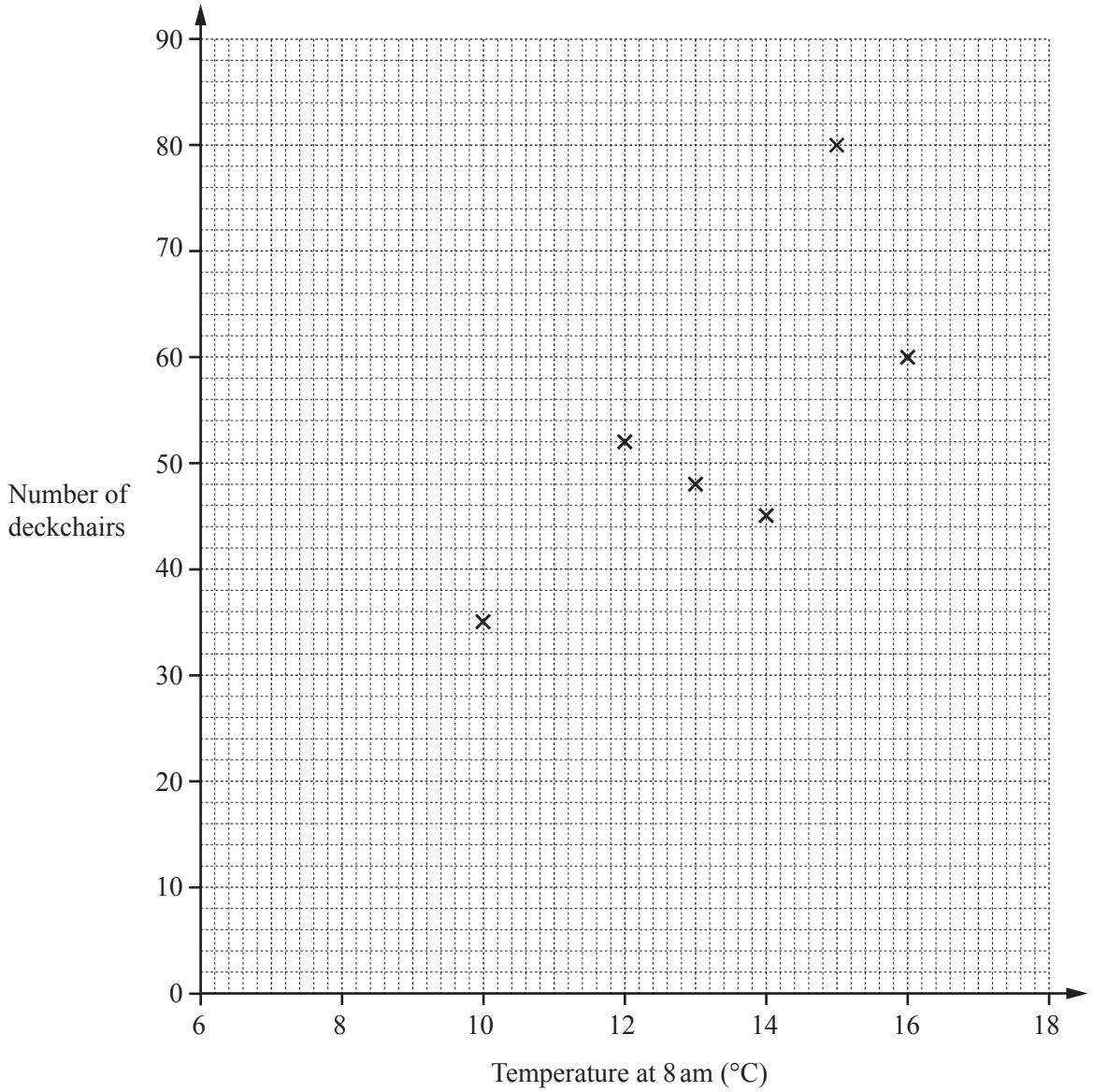
..... [3]

[Turn over

3 Mr Patel rents out deckchairs at the seaside.
For 10 days he has recorded the temperature at 8 am and the number of deckchairs rented out that day.
The results are shown in the table below.

Temperature at 8 am (°C)	10	12	14	13	15	16	13	14	12	10
Number of deckchairs	35	52	45	48	80	60	56	85	38	40

(a) Complete the scatter diagram.
The first six points have been plotted for you.



[2]

(b) What type of correlation is shown on the scatter diagram?

..... [1]

(c) On the grid, draw the line of best fit. [1]

(d) On another day, the temperature at 8 am is 11 °C.

Use your line of best fit to estimate the number of deckchairs that will be rented out on this day.

..... [1]

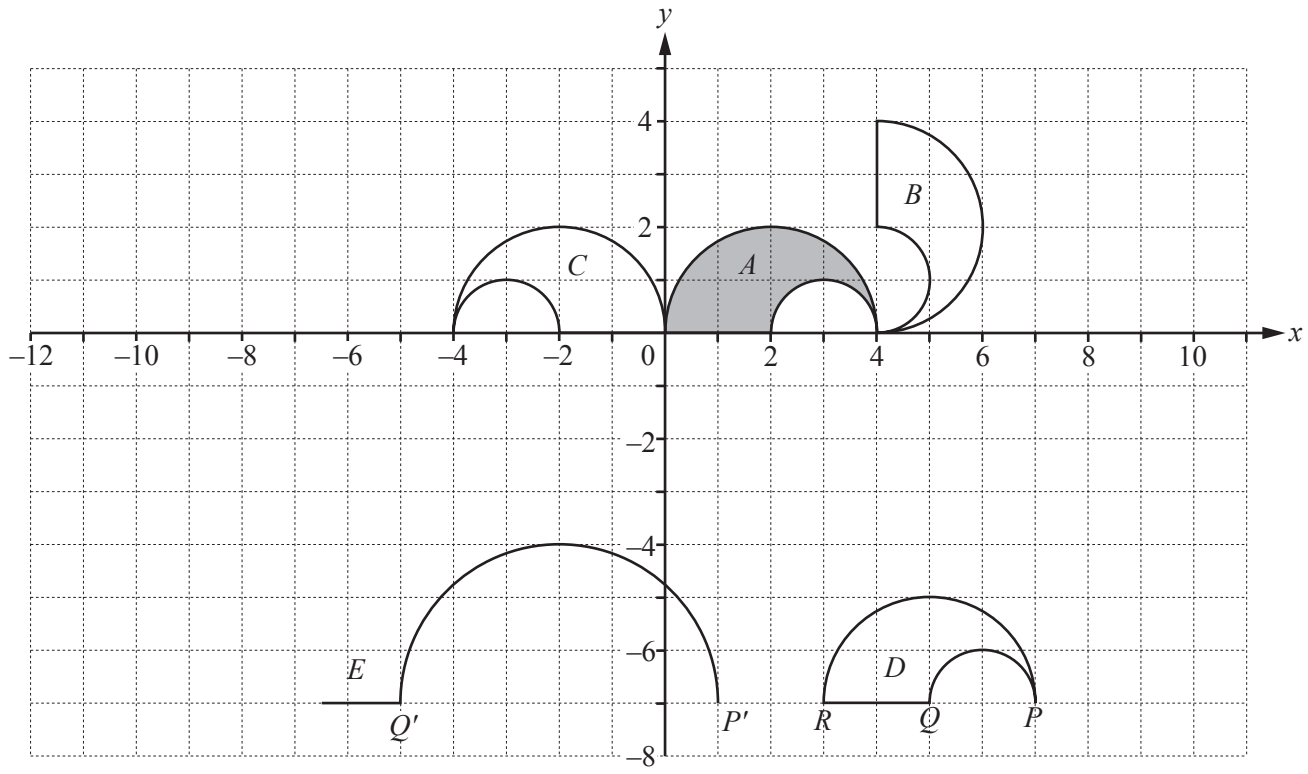
(e) On a different day, the temperature at 8 am is 8 °C.
Mr Patel looks at the scatter diagram and decides it is not worth renting out deckchairs on that day.

Explain why Mr Patel should not use the scatter diagram to make this decision.

..... [1]

[Turn over

4



The diagram shows four shapes A, B, C and D and part of a shape E.

(a) Describe fully the **single** transformation that maps shape A onto shape B.

.....

..... [3]

(b) Megan describes the transformation that maps shape A onto shape C.

Megan says:

Shape A has been reflected in the line $y = 0$.

Make one comment about what is wrong with her answer.

..... [1]

(c) Describe fully the **single** transformation that maps shape A onto shape D.

.....

..... [2]

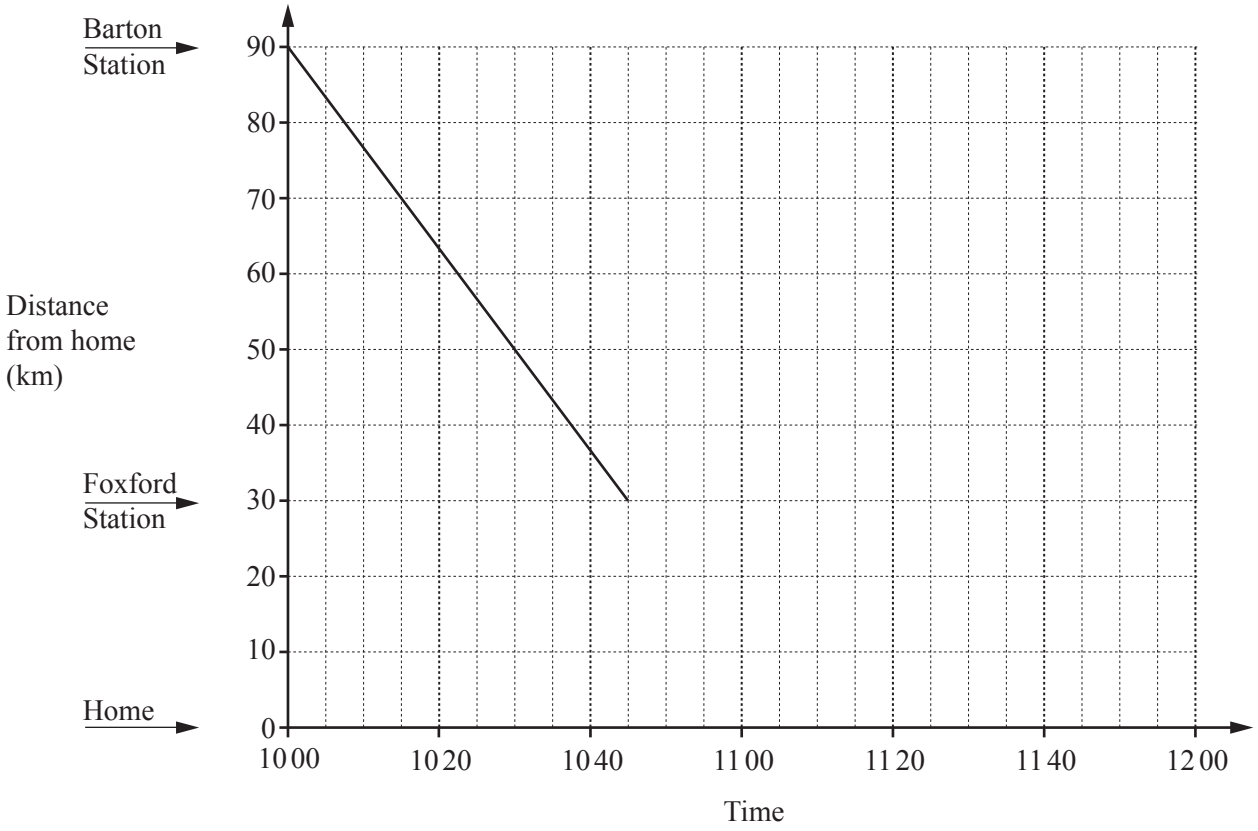
(d) Shape D, with vertices P, Q and R is to be enlarged to give shape E, with vertices P', Q' and R'.
The teacher has started the enlargement but she has not described the enlargement to the class.

(i) Mark the position of R' on the grid and finish drawing shape E. [2]

(ii) Complete the description about the transformation of shape D to shape E.

Enlargement with scale factor ..... and centre of enlargement (..... , ...). [2]

5



The travel graph shows information about Amir's train journey from Barton station to Foxford station.

(a) **(i)** Work out the distance of his train journey.

..... km [1]

(ii) Work out the speed of the train.
Give your answer in km/h.

..... km/h [3]

(b) Amir's mum drives at a constant speed from home to collect Amir from Foxford station.
The car journey takes 30 minutes.
She arrives at Foxford station 10 minutes before the train arrives.

Draw the car journey on the travel graph. [2]

(c) Amir and his mum set off back home from Foxford station at 10 55.
The average speed on the journey home is 40 km/h.

(i) Work out the time they arrive home.

..... [3]

(ii) Draw their car journey home on the travel graph. [1]

(d) Give one possible reason why the car journey home from the station has taken longer than the car journey to the station.

..... [1]

[Turn over

6 **(a)** Complete the list of the first 5 odd numbers.

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

(b) Work out the difference between the 131st even number and the 138th even number.

..... [2]

(c) Suki writes:

The 7th square number = the 6th square number + the 7th odd number.

Show that Suki is correct.

[2]

(d) The sum of the first 50 odd numbers is 2500.

Work out the sum of the first 52 odd numbers.

..... [2]

7 A family has five children, Annie, Jenny, Nathan, Kurt and Evan.

Jenny is three years older than Annie.
Nathan is five years younger than Annie.
Kurt is twice as old as Nathan.
Evan is half Annie's age.

The total of the five children's ages is 65.

(a) Annie is x years old.

Show that $11x - 24 = 130$.

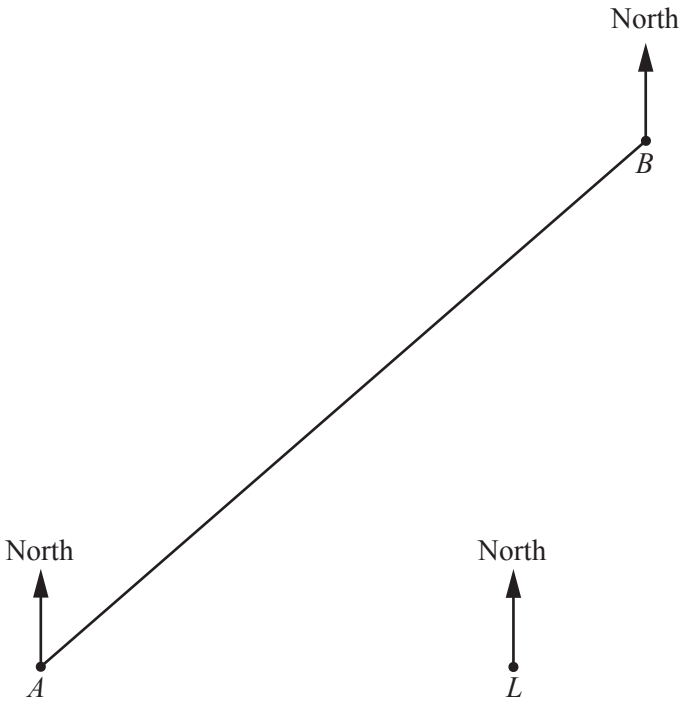
[4]

(b) Work out which child is oldest and give their age.

Name .....

Age ..... [4]

8 The scale drawing shows the positions of two ports, A and B, and a lighthouse, L.
The scale is 1 centimetre represents 15 kilometres.



Scale: 1 cm to 15 km

(a) The lighthouse, L, is due east of A.

Write down the three-figure bearing of L from A.

..... [1]

(b) Work out the actual distance of B from A.

..... km [2]

(c) A ferry, F, is on a bearing of 123° from B and on a bearing of 033° from L.

Mark the position of F on the scale drawing. [2]

(d) The bearing of the lighthouse from a tanker is 295°.

Work out the three-figure bearing of the tanker from the lighthouse.

..... [2]

(e) A ship travels from A to B.
The ship's captain can see the lighthouse when the ship is no more than 75 kilometres from the lighthouse.

Construct and show clearly the part of the route from A to B where the captain **cannot** see the lighthouse.

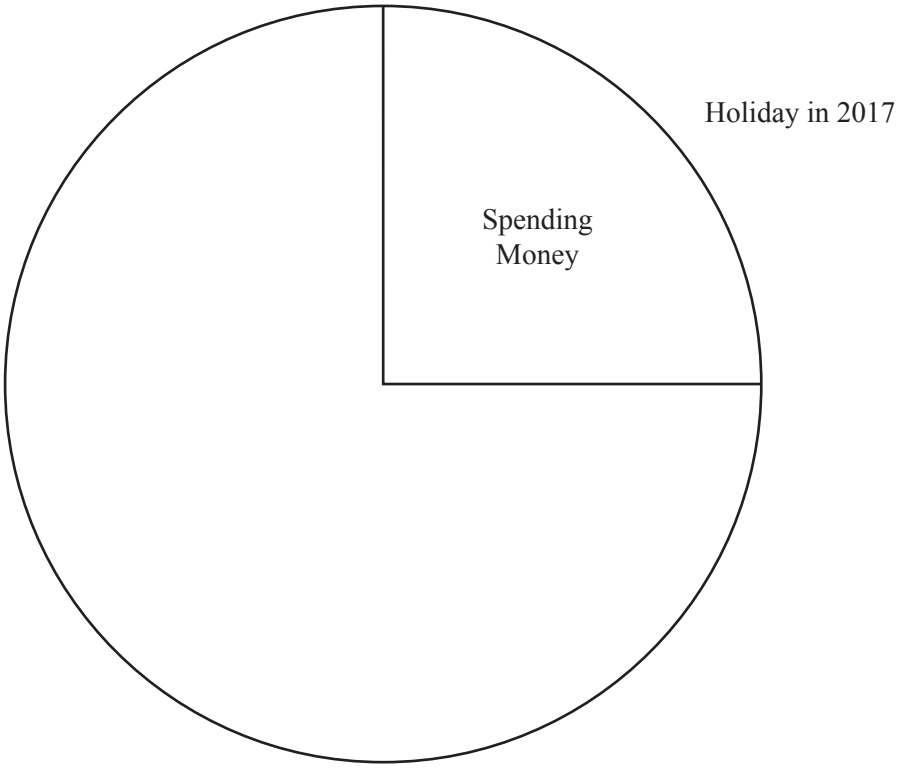
[3]

9 In 2017, Peter went on holiday.
The total cost of the holiday was divided into Spending Money, Flights and Accommodation.
He decided to draw a pie chart to show his costs.
The table shows some of the information.

	Amount (£)	Pie chart angle
Spending Money	300	90°
Flights	240	72°
Accommodation		

(a) (i) Complete the table above. [2]

(ii) Complete the pie chart for the cost of Peter's holiday in 2017.

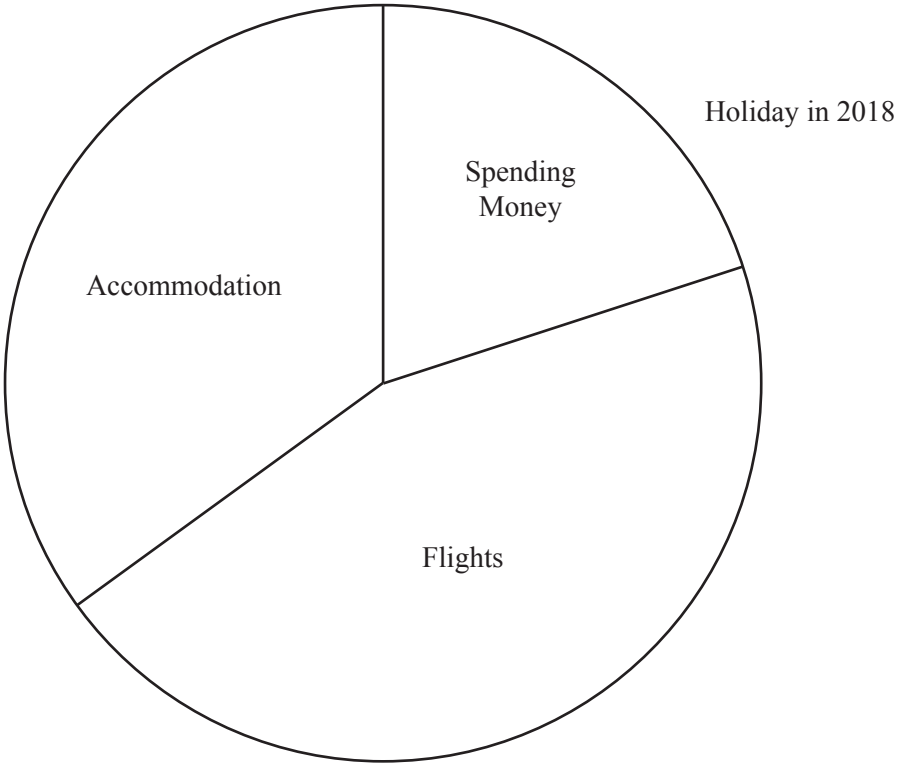


[1]

(b) Peter completed a similar table for the costs of his holiday in 2018.
The total cost of the holiday was £1800.

	Amount (£)	Pie chart angle
Spending Money	360	72°
Flights	810	162°
Accommodation	630	126°

The pie chart shows the costs of Peter's holiday in 2018.



(i) Peter says:

I had more Spending Money in 2018 than in 2017 but the sector is smaller.
The pie charts cannot be correct.

Explain why Peter is wrong.
Use values from the tables to justify your answer.

.....

..... [2]

(ii) For 2018, write the ratio Spending Money : Flights : Accommodation in its simplest form.

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

(iii) Peter changes his Spending Money into euros.
The exchange rate is €1= £0.79 .

Convert £360 into euros.

€ ..... [2]

10 In this question all measurements are in centimetres.

NOT TO SCALE

The diagram shows a rectangle.

(a) Write down an expression for the area of the rectangle.

..... [1]

(b) The area of the rectangle is $136\,\text{cm}^2$.

Show that $y^2 - 5y - 150 = 0$.

[3]

(c) **(i)** Factorise and solve $y^2 - 5y - 150 = 0$.

$y =$ ..... or $y =$ ..... [3]

(ii) Work out the length of the rectangle.

..... cm [1]

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