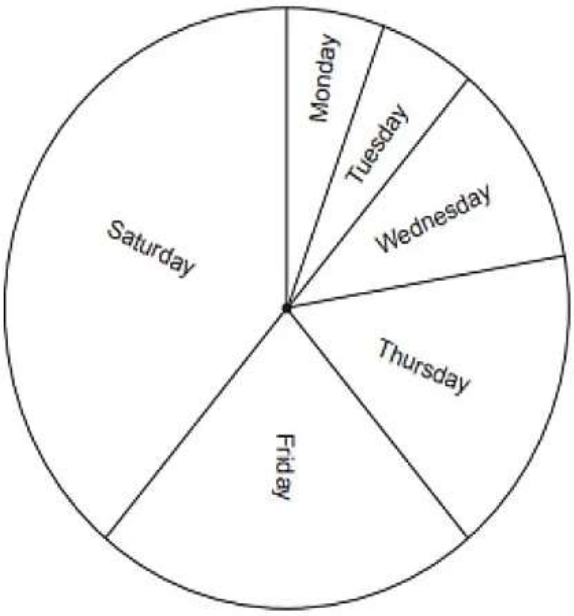
Intermediate Numeracy Summer 2019 P2 Q1

Ian owns two shops. One is in Ffordd Owain and the other is in Arthur Avenue.
For each shop, Ian has been presented with the sunglasses sales for last week.

Ffordd Owain daily sunglasses sales for last week

In total, 90 pairs of sunglasses were sold.



Arthur Avenue daily sunglasses sales for last week

(a) For each shop, what fraction of the sunglasses sold last week was sold on Friday?
Express your answers as fractions in their simplest terms.

(i) Ffordd Owain: [2]

(ii) Arthur Avenue: [2]

(b) At the Arthur Avenue shop, what percentage of the sunglasses sold last week was sold on Tuesday? [2]

(c) On Saturday, how many more sunglasses were sold in the Ffordd Owain shop than in the Arthur Avenue shop? [5]

Intermediate Numeracy Summer 2018 P2 Q1

In a survey, 720 students were asked if they preferred to take part in *gym activities*, *team sports* or *individual sports*.
They were asked to choose just one of these options.
The results are displayed in the pie chart below.

(a) How many students selected *individual sports*?
Circle your answer. [1]

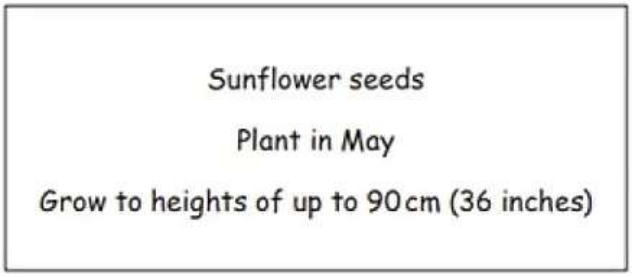
90 180 270 405 540

(b) Carwyn plans to split *team sports* on the pie chart into *football* and *other team sports*.
Of the students who selected *team sports*, $\frac{2}{5}$ said their preferred team sport was *football*.
What angle should Carwyn draw to represent *football*? [3]

(c) 720 students took part in the survey. Only 45% were **female**.
How many **males** took part in the survey? [2]

Intermediate Numeracy Summer 2019 P1 Q2

Sunflower seeds come in a packet.



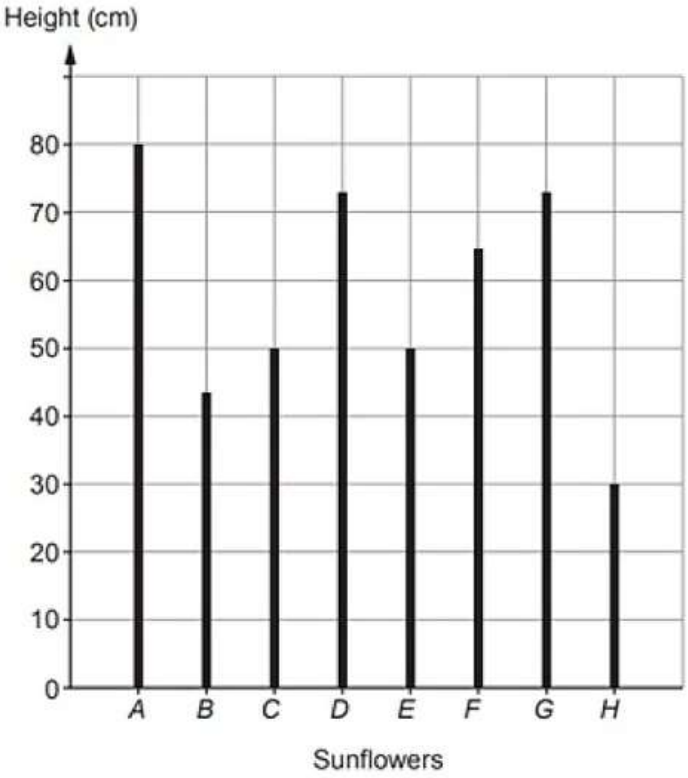
Dieter planted 8 sunflower seeds in May.
He labelled the sunflowers *A*, *B*, *C*, *D*, *E*, *F*, *G* and *H*.

On 21st August, he measured the heights of all the sunflower plants in cm.

Dieter planted 8 sunflower seeds in May.
He labelled the sunflowers *A*, *B*, *C*, *D*, *E*, *F*, *G* and *H*.

On 21st August, he measured the heights of all the sunflower plants in cm.

Dieter then drew a graph, as shown below.



(a) Use the graph to answer each of the following questions.

(i) What fraction of the height of the tallest sunflower is the height of the shortest sunflower?
Circle your answer. [1]

$\frac{3}{10}$ $\frac{3}{7}$ $\frac{3}{5}$ $\frac{3}{8}$ $\frac{3}{80}$

(ii) What is the ratio of the number of sunflowers with heights less than 55 cm to the number of sunflowers with heights greater than 55 cm?
Circle your answer. [1]

5 : 3 3 : 5 1 : 3 3 : 1 1 : 1

(b) Dieter's friend, Glyn, also planted sunflower seeds.
Glyn's tallest sunflower grew to a height of 24 inches.
Is this taller or shorter than Dieter's tallest sunflower?
You must show all your working to support your answer. [2]

Intermediate Numeracy Nov 2016 P2 Q2

(a) 36 000 people took part in a survey to find out their favourite type of TV programme.
The pie chart shows the results.

(i) How many people chose *Drama* as their favourite type of TV programme?
You must show your working. [3]

(ii) How many more people chose *Sport* rather than *News* as their favourite type of TV programme?
You must show your working. [3]

(iii) Twice as many women as men chose *Talent shows* as their favourite type of TV programme.
Calculate how many women chose *Talent shows*.
You must show your working. [3]

(b) 1000 people were asked,

'Should news programmes include details of the weather?
Yes or No?'

70% of the people answered 'yes'.
A pie chart is to be drawn to represent the answers to this question.
What size would the angle be to represent the answer 'yes'? [2]

Intermediate Numeracy Nov 2017 P2 Q3

Lloyd has carried out a survey in his school.
He surveyed 300 pupils.
Below is a section from his questionnaire.

1. Which year group are you in? .....
2. Do you like the colours of the school uniform? .....
3. What is your favourite colour? .....

(a) Afterwards, Lloyd thinks he should have given option boxes in questions 1 and 2.
What could these option boxes be? [2]

Question 1:

.....

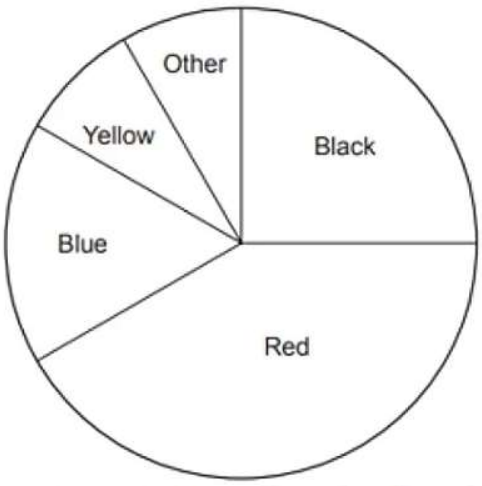
.....

Question 2:

.....

.....

(b) A pie chart displaying the results from question 3 of the questionnaire is shown below.



(i) Which colour was chosen by 75 pupils as their favourite colour?
Circle your answer. [1]

Black Red Blue Yellow Other

.....

(ii) What fraction of the pupils said that blue was their favourite colour?
Give your answer in its simplest form. [3]

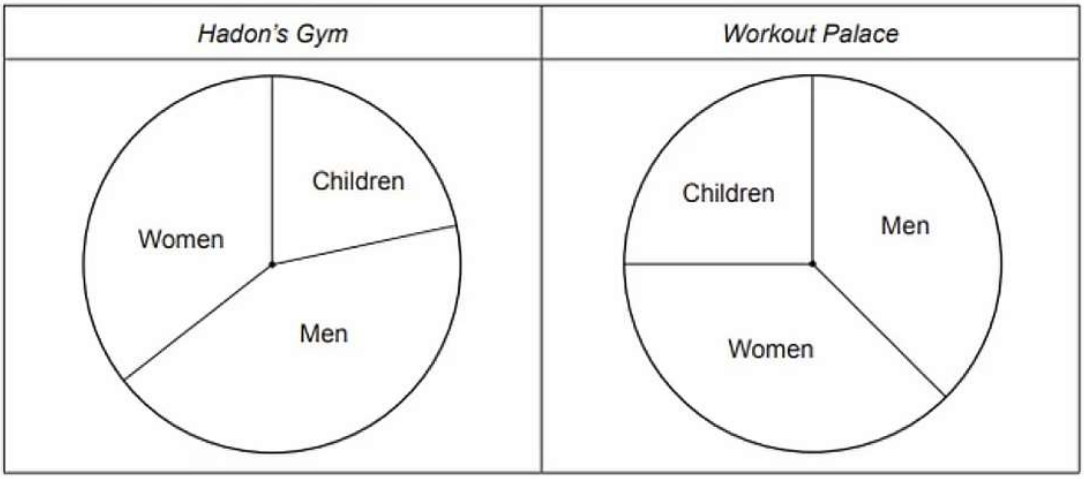
Intermediate Maths Nov 2018 P2 Q3

One day, Gwyn was asleep for 8 hours and awake for the remaining hours.

Draw an accurate pie chart to illustrate this information. [4]

Intermediate Numeracy Summer 2017 P2 Q3

Tomos is looking at gym memberships for *Hadon's Gym* and *Workout Palace*.
Each of these gyms displays its membership in a pie chart.



(a) About what percentage of the members at *Hadon's Gym* are children?
Circle your answer. [1]

10% 20% 30% 40% 50%

(b) Which of the following is the best estimate for the percentage of the members at *Workout Palace* who are women?
Circle your answer. [1]

25% 28% 30% 32% 38%

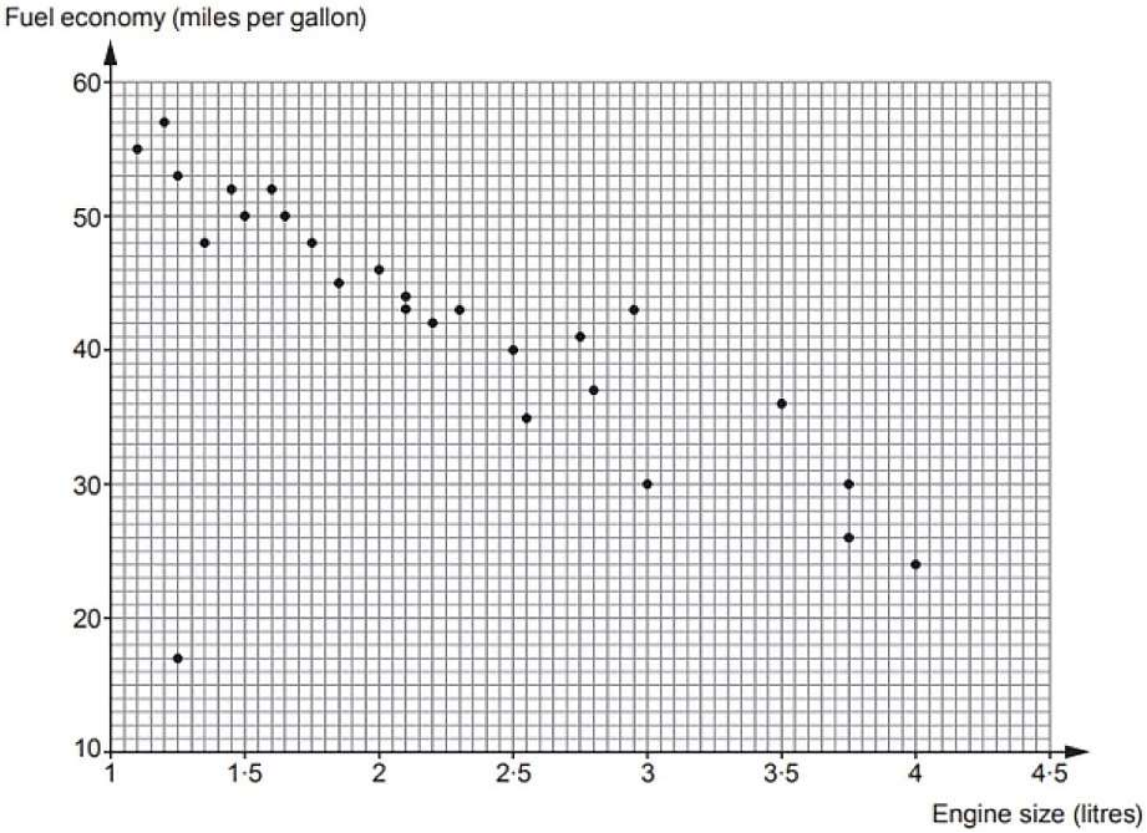
(c) Tomos says,
'There are more men with membership at *Hadon's Gym* than at *Workout Palace*.'

Is Tomos **certain** to be correct?
You must give a reason for your answer. [1]

Yes ☐ No ☐

Intermediate Numeracy Summer 2019 P1 Q4

The distance a car will travel using 1 gallon of fuel is called its fuel economy.
The fuel economy of a number of cars with different engine sizes is shown below.



Use the scatter diagram to answer the following questions.

(a) State the fuel economy of the car with the largest engine size. [1]

(b) State the engine size of the car with a fuel economy of 42 miles per gallon. [1]

(c) (i) Calculate the mean fuel economy of the 5 cars with the **smallest** engine sizes. [3]

(ii) Why is this not a suitable average for cars with engine sizes of less than 1·5 litres? [1]

(d) Draw, by eye, a line of best fit on the scatter diagram. [1]

(e) Siân says,

> The scatter diagram is more reliable to estimate the fuel economy of cars with engine sizes less than 2·5 litres.

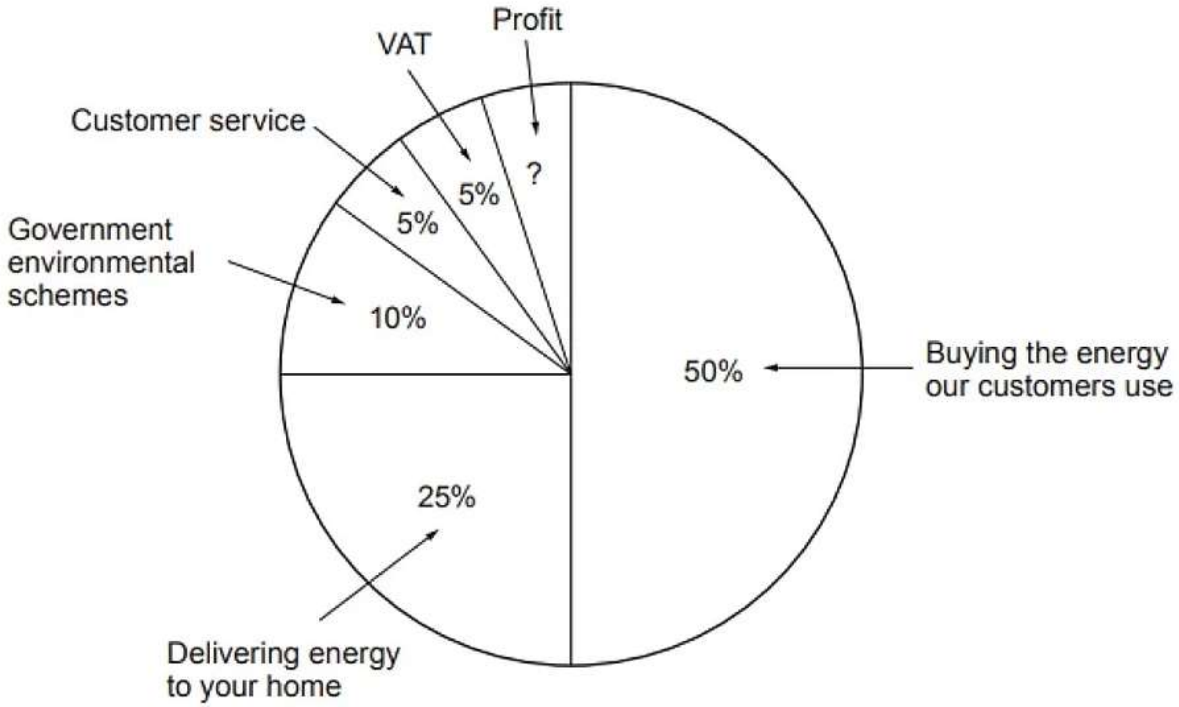
Do you think Siân is correct?

YES NO DON'T KNOW

You must give a reason for your answer. [1]

Intermediate Numeracy Nov 2018 P2 Q4a

(a) *Rushmoore Energy* is a company that supplies electricity.
Last year, *Rushmoore Energy* displayed the following information in a pie chart.



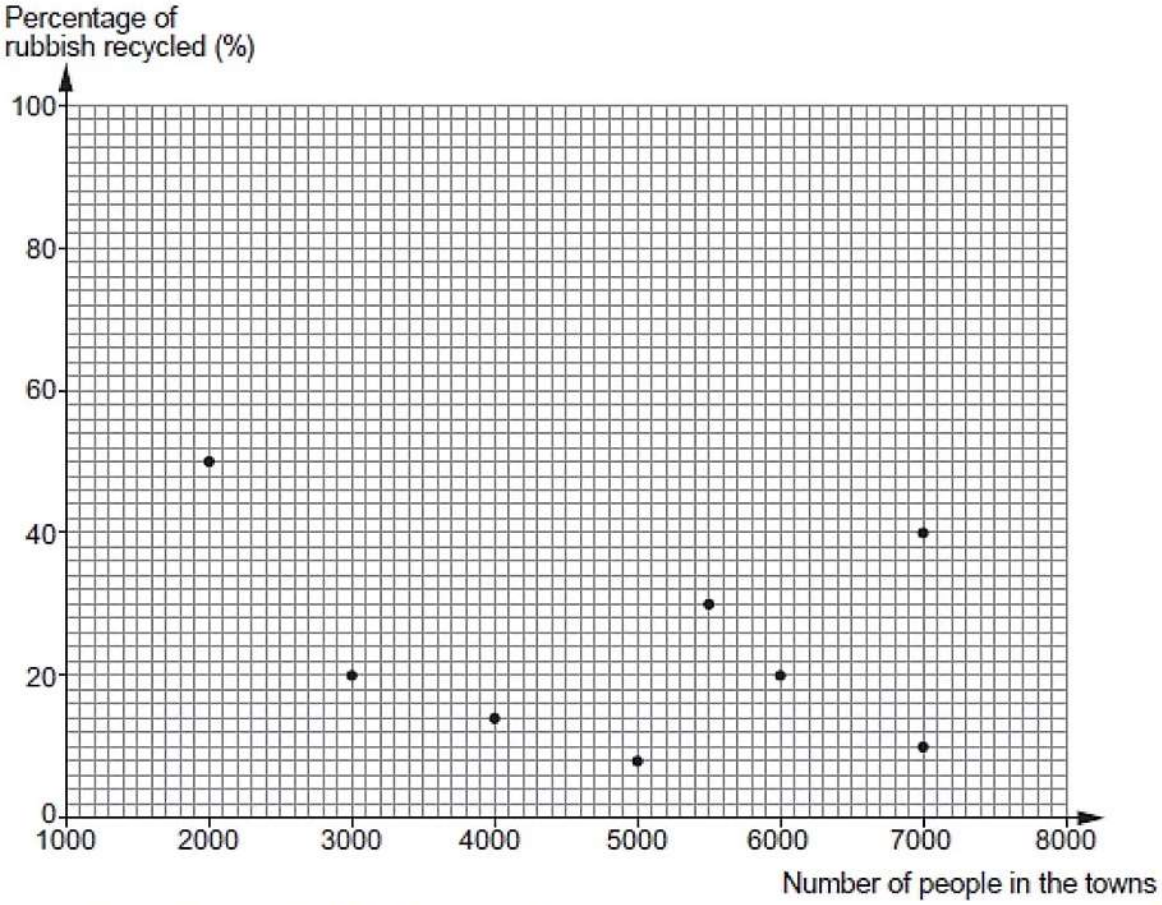
The pie chart represents a total of £9100 million.

How much profit did *Rushmoore Energy* make last year?
Give your answer in millions of pounds. [3]

Intermediate Numeracy Nov 2018 P1 Q4a

(a) The mass of rubbish recycled is given as a percentage of the total mass of rubbish produced.

The percentage of rubbish recycled by people living in 8 small towns was recorded.
The results for the first week in July 2005 are shown in the scatter diagram below.



(i) Complete each of the statements below. [2]

'In July 2005, two of the 8 towns had the same number of people.
The percentages of rubbish recycled in these two towns were

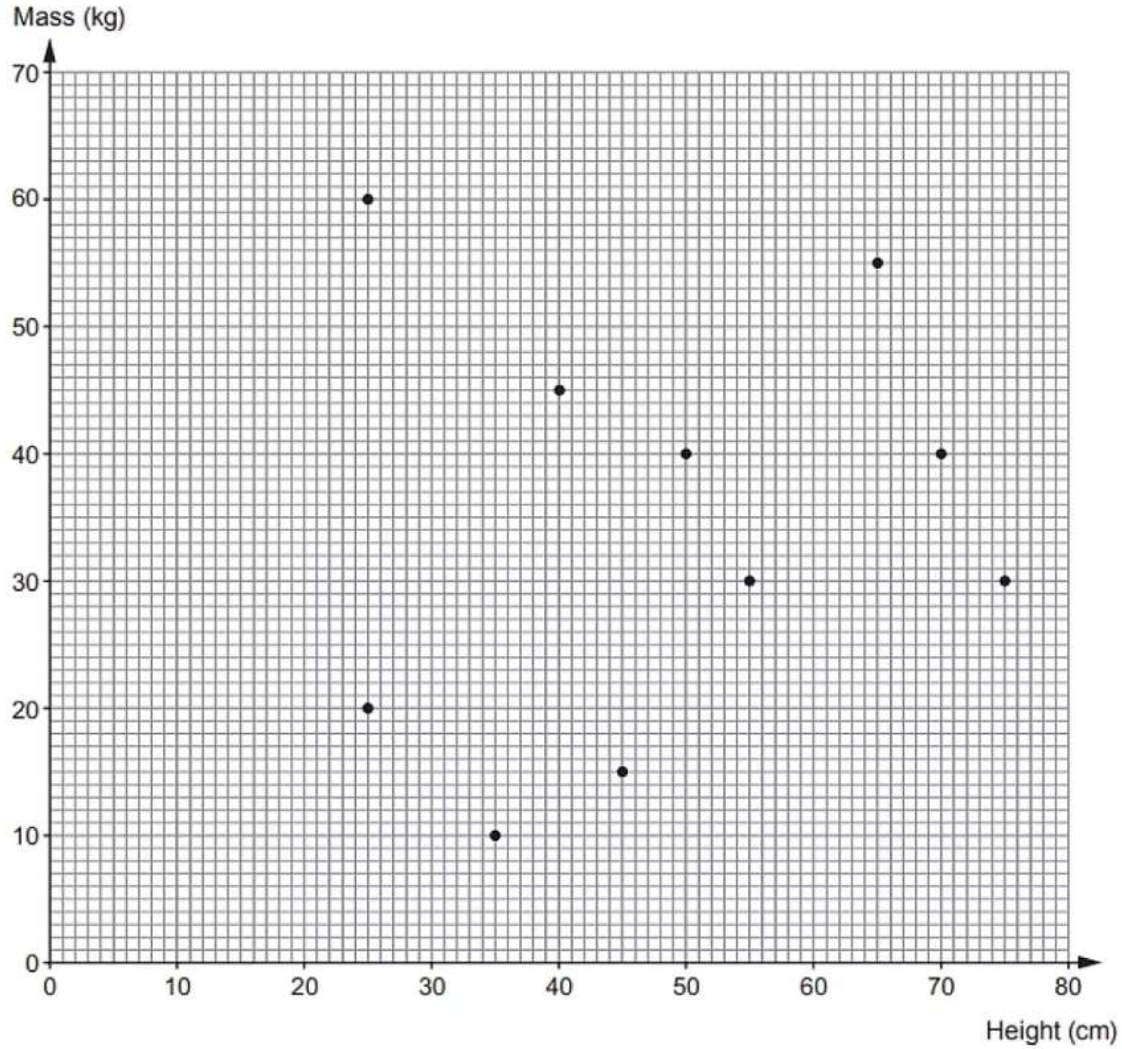
..... % and ..... %.'

'The town with the least number of people had set a target of recycling 45% of rubbish for July 2005.
This small town beat this target by ..... %'

(ii) Explain why it is **not** reasonable to use this data to estimate the percentage of rubbish recycled in a town of 9000 people. [1]

Intermediate Numeracy Summer 2017 P2 Q4

A group of friends measured the heights and masses of their pets.
The scatter diagram shows the results.



(a) Describe the correlation shown by this scatter diagram. [1]

.....

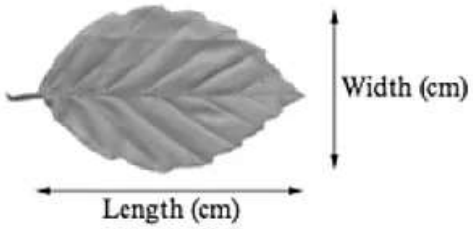
(b) The friends notice that the tallest pet has the same mass as another pet.
What is the height of this other pet? [1]

Intermediate Numeracy Sam 2 P1 Q5

Billy and Shaun both completed a survey.
They collected leaves from a number of trees and decided to measure them.

They agreed on the following decisions

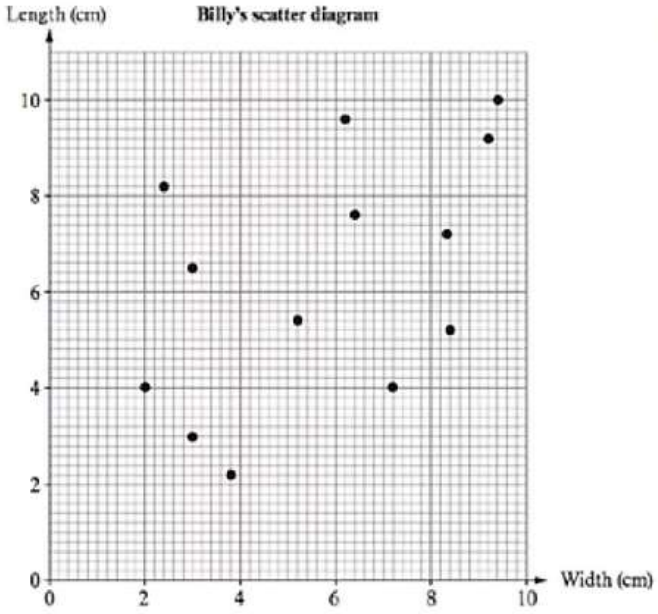
- The length of the leaf does not include the stem
- The width of the leaf is measured at the widest section of the leaf

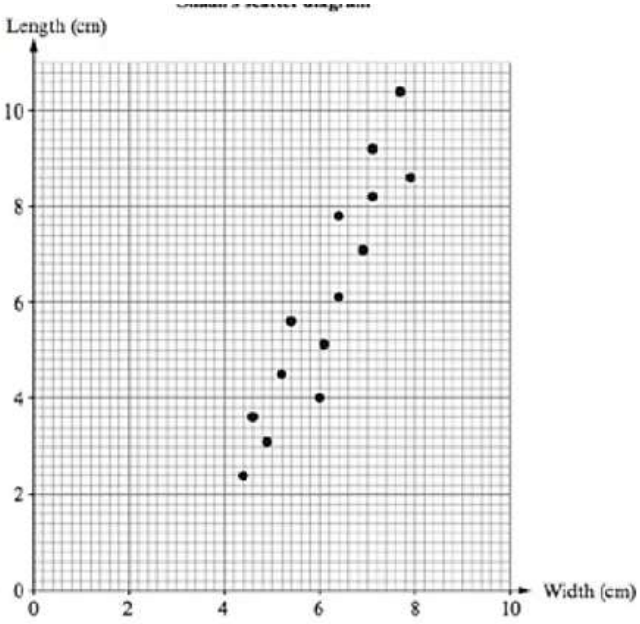


(a) Why have they both agreed on these decisions about measuring the leaves?

[1]

(b) Billy measured the length and width of each leaf he had collected.
Shaun did the same with his leaves.
They displayed the lengths and widths of their own leaves on separate scatter diagrams.





(i) Who found the longest leaf? .....

Write down the length of this leaf. ..... cm

[1]

(ii) Only one of the two boys collected all his leaves from the same tree.
Who was this, Billy or Shaun? Give a reason for your answer.

[1]

(iii) Draw, by eye, a line of best fit on Shaun's scatter diagram.

[1]

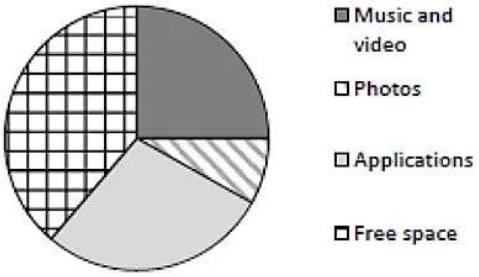
(iv) Shaun realises he has one more leaf that he has not included on his scatter diagram.
The leaf is damaged in such a way that Shaun cannot measure its width.
The length of the leaf is 8·5 cm.
Write down a reasonable estimate for the width of this leaf.

Width ..... cm

Intermediate Numeracy Sam 1 P2 Q5b

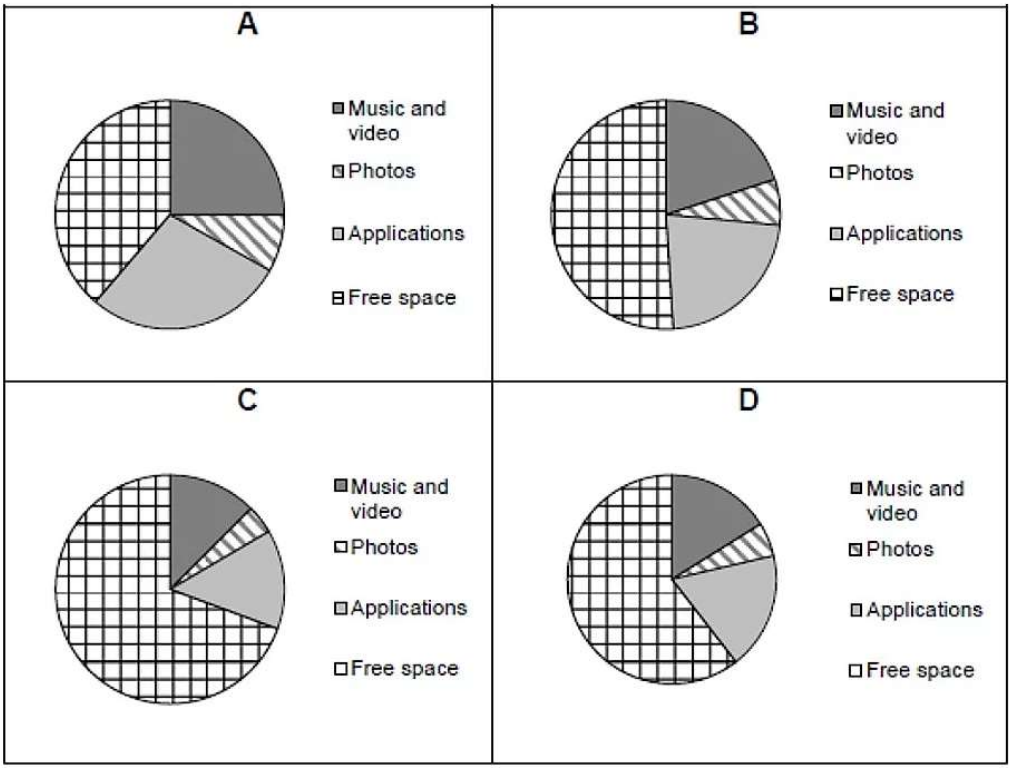
(b) Gemma's old tablet had a memory capacity of 16 GB.
Gemma stored music and videos, photos and applications on her tablet.
The table and pie chart below show the memory status of her 16 GB tablet.

Music and videos	4 GB
Photos	1·3 GB
Applications	4·5 GB
Free space	6·2 GB



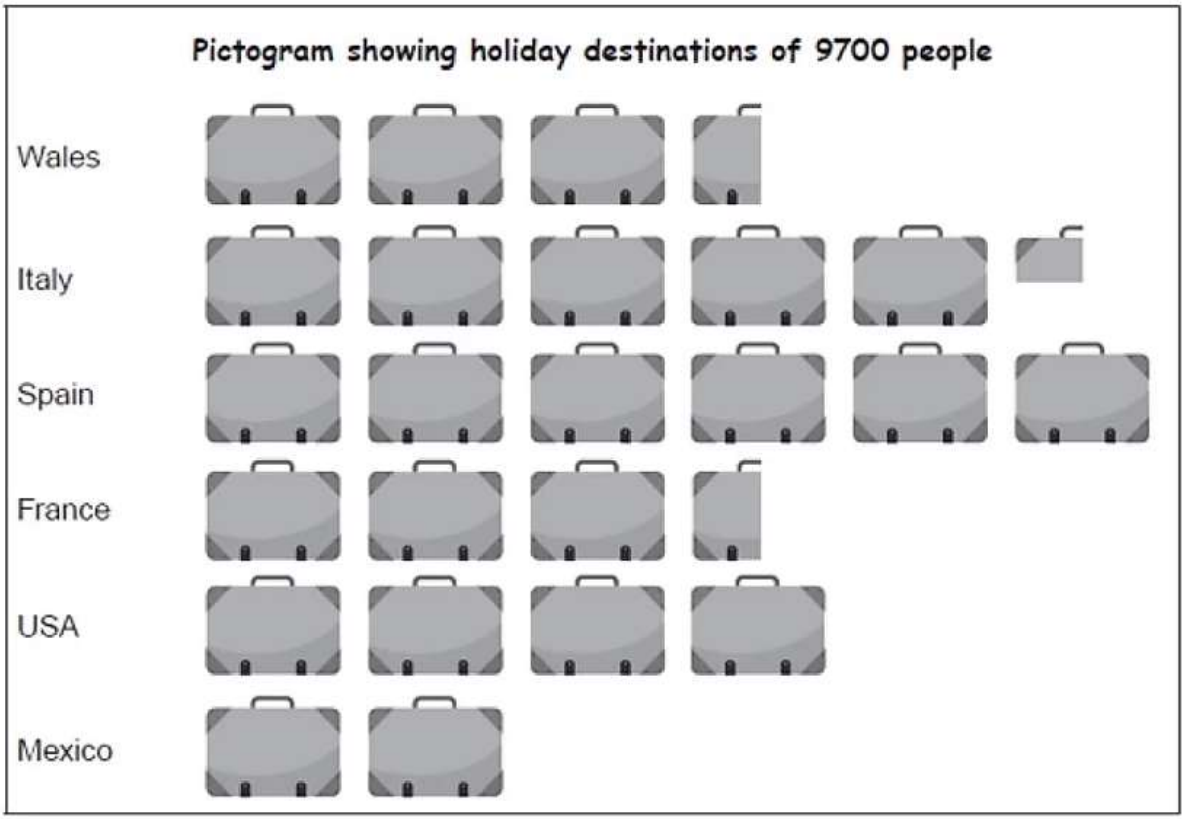
Gemma's new tablet has a memory capacity of 32 GB.
Gemma transfers the content of her old tablet to the new one.

Which one of the following graphs represents her new tablet's memory status? [1]
Circle A, B, C or D.



Intermediate Numeracy Summer 2018 P2 Q5

Mena is going on holiday.
She hasn't decided where to go yet.
In a travel brochure, Mena sees a pictogram showing the holiday destinations of 9700 people.



(a) Complete the key for the pictogram. [3]

represents ..... people

(b) What is the following ratio in its **simplest form**?

number of people who went to Spain : number of people who went to the USA

Circle your answer. [1]

6 : 4 4 : 6 400 : 600 3 : 2 2 : 3

(c) Look at the pictogram. The ratio of the number of people who went to Wales to the number of people who went to another country is 2 : 3.
Which country is this? [1]

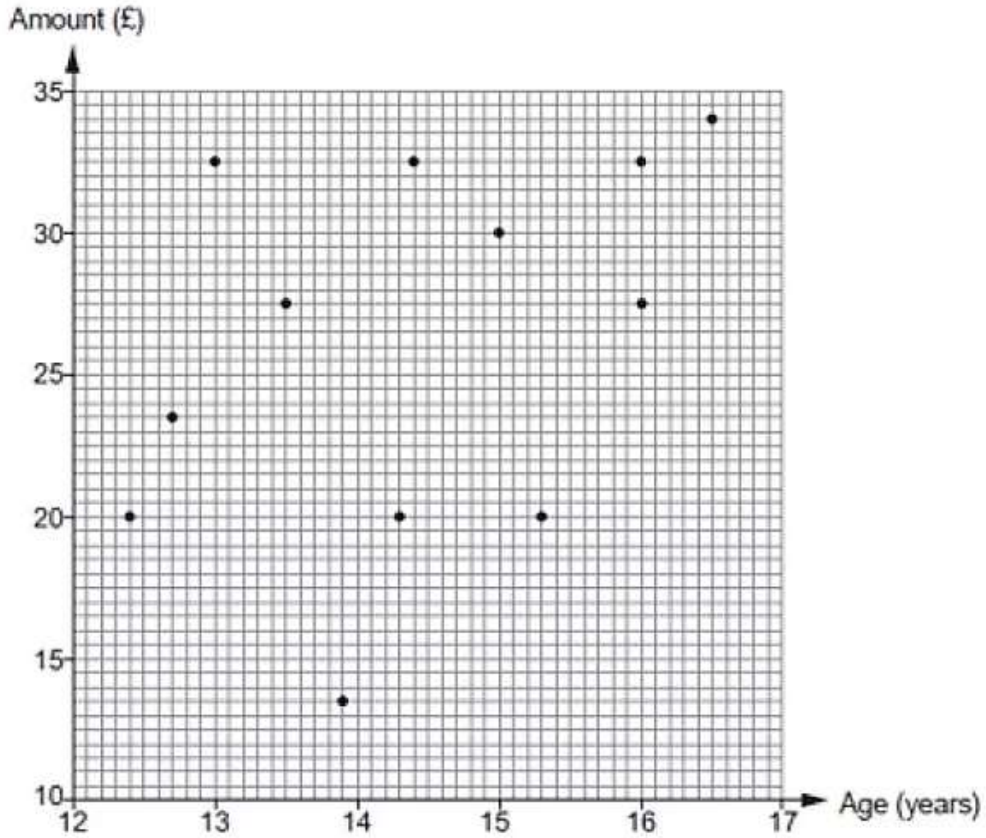
2 : 3

Wales : .....

Intermediate Numeracy Summer 2018 P1 Q5

Lekan's parents have complained that they are paying too much towards his mobile phone bill each month.

Lekan decides to ask a number of students in school how much their parents or carers pay towards their mobile phone bills each month.
He displays the results in a scatter diagram. These include his own results.



(a) Lekan's parents want to know the names of some of these students.

The two 15-year-old students are Harriet and Eleri.
Eleri is older than Harriet.

Gwilym and Aled's parents each pay £27.50 per month.
Aled is younger than Gwilym.

(i) Complete each of the following statements. [2]

'Eleri's parents or carers pay £ ..... each month towards her mobile phone bill.'

'Harriet's parents or carers pay £ ..... each month towards her mobile phone bill.'

(ii) Complete each of the following statements. [3]

'Gwilym is ..... years ..... months old.'

'Aled is ..... years ..... months old.'

(b) Lekan's parents pay £32.50 per month towards his mobile phone bill.
He is the youngest of the 3 students who receive £32.50 per month towards their mobile phone bill.

(i) How old is Lekan? [1]

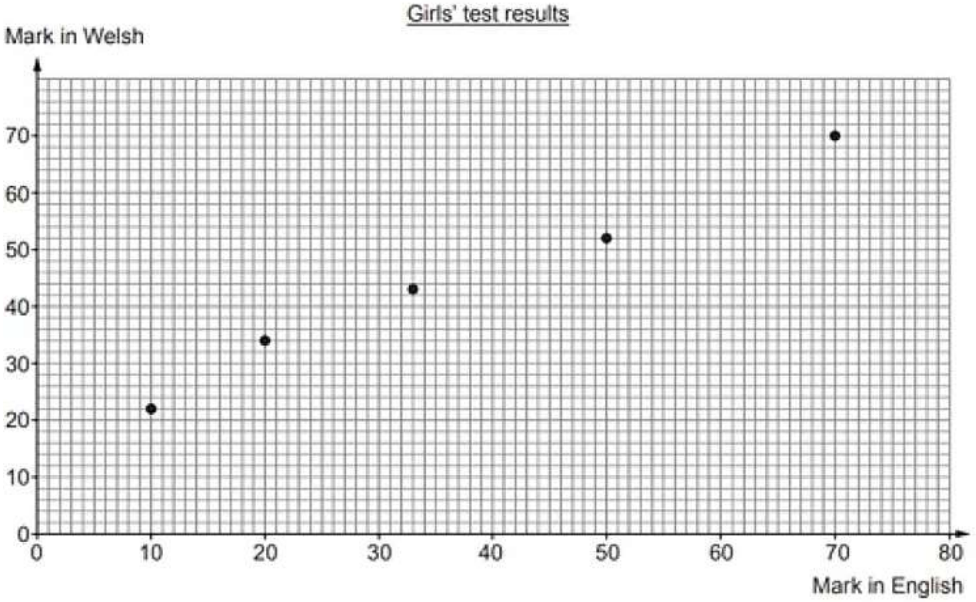
(ii) Do you think Lekan's parents are right to complain that they are paying too much towards his mobile phone bill each month?
You must use the scatter diagram to give a reason for your answer. [1]

Intermediate Numeracy Nov 2016 P1 Q5b

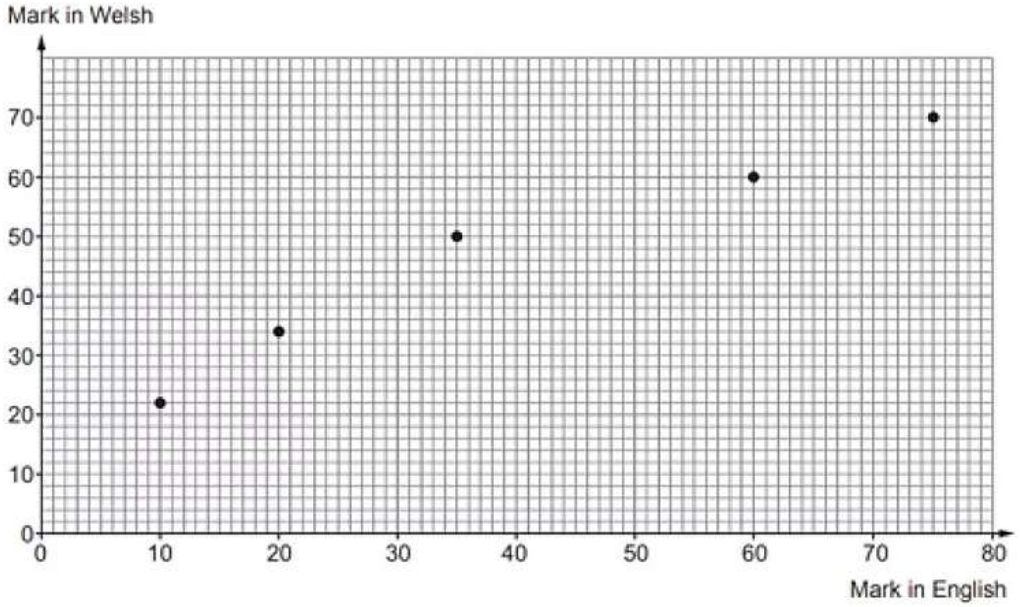
(b) Rowena states a hypothesis,
'Boys do better than girls in their English tests.'

She displays the test marks for 5 girls and 5 boys in scatter diagrams.

Girls' test results



Boys' test results



(i) Does the data support Rowena's hypothesis?
You must give a reason for your answer. [1]

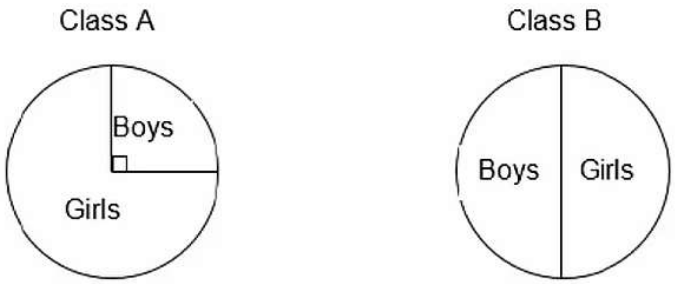
(ii) How could Rowena improve the testing of her hypothesis? [1]

(c) Draw, by eye, a line of best fit to estimate how many marks you might expect a **boy** to score in a Welsh test if he scored 50 marks in his English test. [2]

..... marks

Intermediate Maths Sample 1 P2 Q5b

The two pie charts below show the ratio between the number of girls and the number of boys in each of two different classes.



There are **more** girls in class B than in class A.

Complete the table below to show a **possible** set of numbers that will satisfy all of the above information. [3]

There are **more** girls in class B than in class A.

Complete the table below to show a **possible** set of numbers that will satisfy all of the above information. [3]

	Girls	**Boys**
Class A		
Class B		

Intermediate Maths Sample 1 P2 Q5

(a) A hospital collected data on the age group of each of 120 people that were treated as outpatients on a particular day.

The results are summarised below.

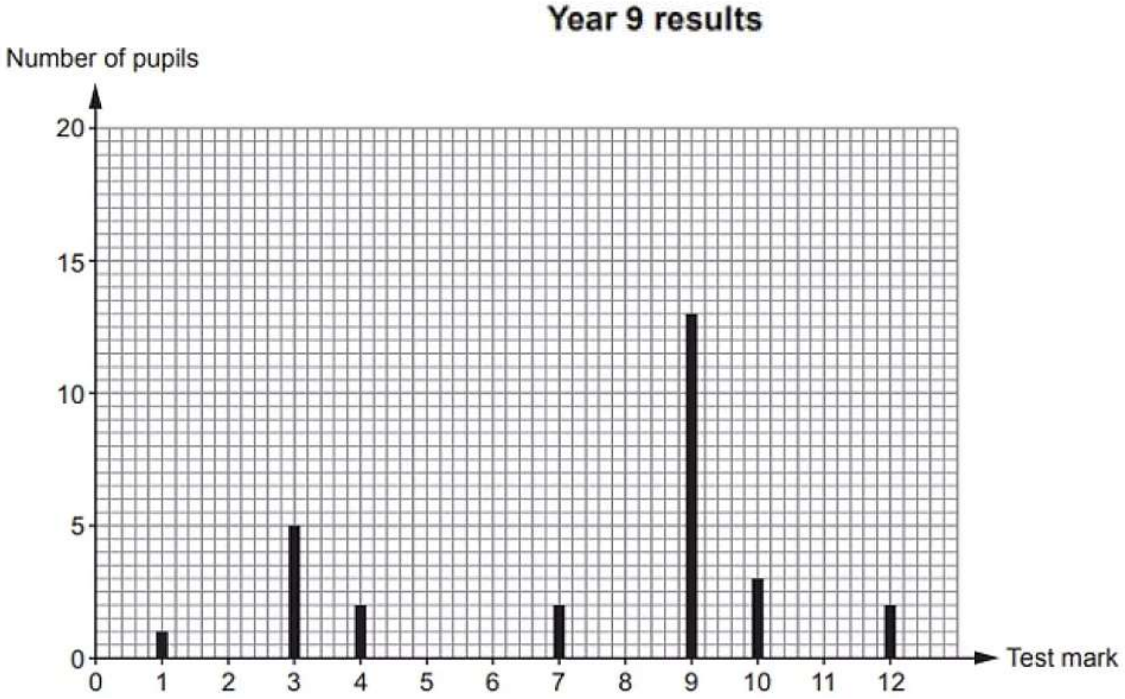
Age Group	Number of people
Pre-school	18
School	24
60 and over	35
Others	43

Draw a pie chart to illustrate these results.
You should show how you calculated the angles of your pie chart. [4]

Intermediate Numeracy Summer 2017 P2 Q8a

(a) Miss Rashud gave her Year 9 French class a test on Wednesday.
She asked her class to spell 12 different words.

She displays the results as shown below.



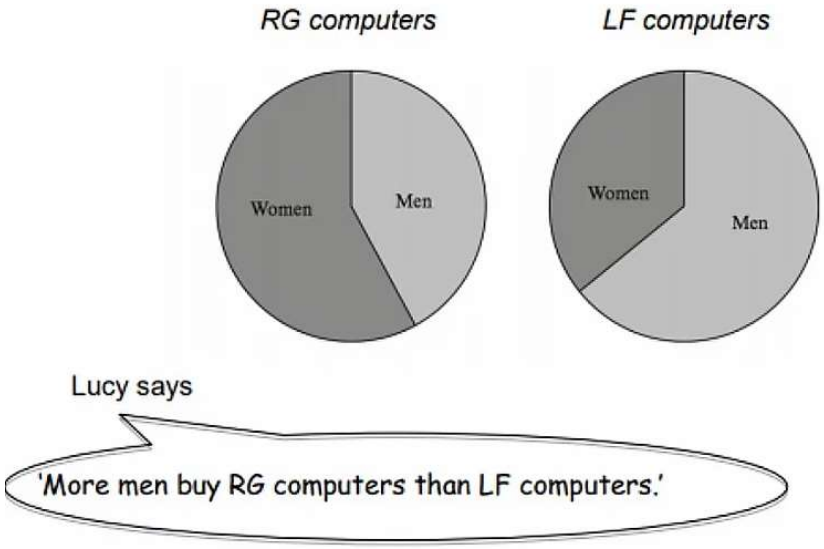
(i) How many pupils scored **more than 9** in the test? [1]

(ii) How many pupils are there in Miss Rashud's French class? [1]

(iii) What assumption have you made in answering part (ii)? [1]

Intermediate Numeracy Sam 2 P1 Q9a

Lucy has been given pie charts showing the number of computers sold by 2 different companies.



Lucy says

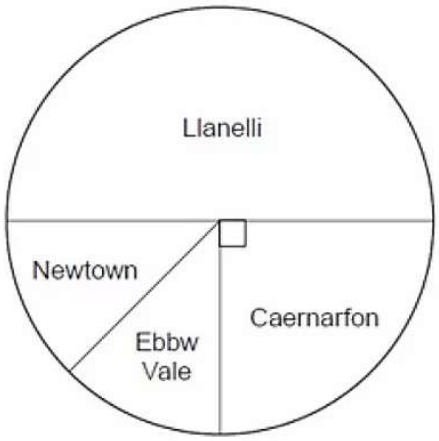
'More men buy RG computers than LF computers.'

Explain how this could be true. [1]

Intermediate Maths Summer 2018 P1 Q13b

A company has offices in Llanelli, Caernarfon, Newtown and Ebbw Vale.
Its national committee is made up of workers from these four offices.

The pie chart below shows what fraction of the committee members come from each office.



There is an equal number of members from Newtown and Ebbw Vale.

A member is chosen at random from this committee to be its chairperson.

(i) The probability that the chosen member works at the Llanelli office is shown in the table below.

Complete the table. [2]

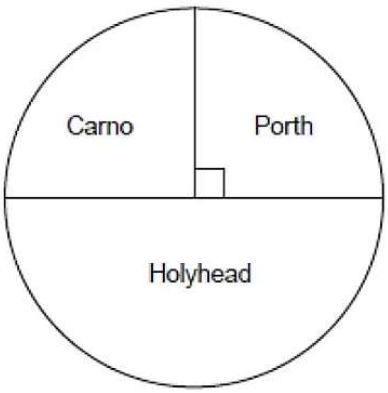
Office	Llanelli	Caernarfon	Newtown	Ebbw Vale
Probability	$\frac{1}{2}$			

(ii) What is the probability that the member chosen as chairperson works at either the Llanelli or the Ebbw Vale office?
You must show all your working. [2]

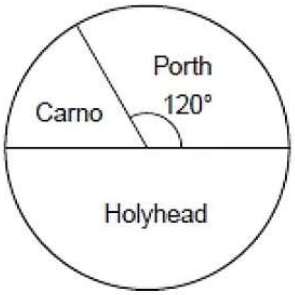
Intermediate Maths Summer 2019 P2_Q13

A company has 3 sites based in Wales.
One is in Carno, one is in Holyhead and one is in Porth.

The pie charts below show the distribution of its 128 female staff and 72 male staff.



128 female staff



72 male staff

A person is chosen at random from the company's 200 staff members.
What is the probability that this person works at the Porth site? [4]
