Chhetri Academy

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GCSE MATHS

Statistics

Edexcel 1MA1 | Subtopic collection Topic 57

Averages and spread

Foundation tier

Past paper question booklet

111	2010-2025	Foundation
question groups	available papers	tier

Before you begin

1. Show working and use units where appropriate.
2. Use extra paper if you need more space.
3. Print at actual size (100%) for measurement questions.

Name _____ **Date** _____

Whole questions are retained for context; some parts cover other points. Legacy sources are labelled.

6 Matthew has five cards.
Each card has a number on it.



(a) Write down the median.

.....

(1)

James has three cards.
Each card has a number on it.
The numbers are hidden.



The mode of the three numbers is 4
The mean of the three numbers is 5

(b) Work out the three numbers on the cards.

..... , ... , ...

(2)

(Total for Question 6 is 3 marks)

10 The table gives information about the number of goals scored by a football team in each match last season.

Number of goals	Frequency
0	4
1	5
2	4
3	7
4	4

(a) Write down the modal number of goals scored.

.....

(1)

(b) Work out the total number of goals scored by the team last season.

.....

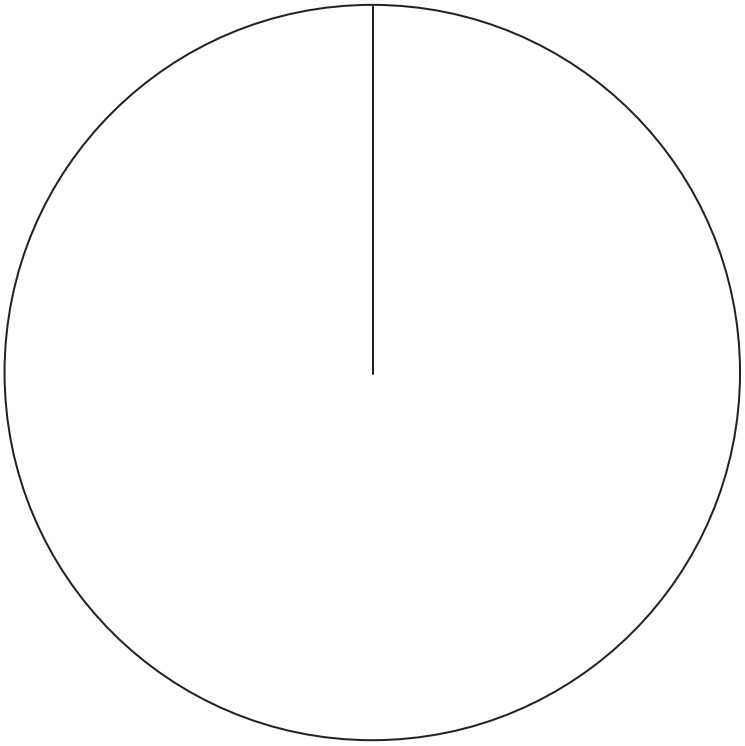
(2)

The table below gives information about the results of the matches played by the football team.

Result	Frequency
Won	10
Drew	6
Lost	8

(c) Draw an accurate pie chart to show this information.

(3)



(Total for Question 10 is 6 marks)

12 Zoe recorded the heart rate of each of 15 people.
She showed her results in a stem and leaf diagram.

5	8 9
6	0 1 4 6 6 7
7	2 3 6 8 9
8	1 4

Key:
5|8 means 58 beats per minute

(a) Find the median heart rate.

..... beats per minute
(1)

(b) Work out the range of the heart rates.

..... beats per minute
(2)

Zoe then asked the 15 people to walk up some stairs.
Zoe recorded the heart rates again.

She used the results to work out the median and the range.

Median	78
Range	37

(c) Compare the heart rates of the people before they walked up the stairs with their heart rates after they walked up the stairs.

.....

.....

.....

.....

(2)

(Total for Question 12 is 5 marks)

6 Callum watched 20 cars go onto a ferry.
He counted the number of people in each car.

Here are his results.

1	3	3	4	1	2	2	3	5	4
2	2	4	5	1	3	2	2	3	2

(a) Complete the frequency table.

Number of people in a car	Tally	Frequency
1		
2		
3		
4		
5		

(2)

(b) Write down the mode.

.....

(1)

Fiona counted the number of cars going onto 6 ferries.

Here are her results.

20	18	23	17	15	21

(c) Calculate the mean number of cars.

.....

(2)

(Total for Question 6 is 5 marks)

10 The stem and leaf diagram shows information about the ages, in years, of the people on a fairground ride.

0	8	8	9					
1	1	2	3	4	4	4	6	7
2	1	2	3	4	5	6	8	
3	1	4	8					
4	2	3	6	8				
5	0	3						

Key: 4 | 2 means 42 years

(a) How many people were on the fairground ride?

.....

(1)

(b) Work out the median age.

.....

(1)

(c) Work out the range of the ages.

.....

(2)

(Total for Question 10 is 4 marks)

5 The table shows the midday temperature on each day for ten days.

Day	1	2	3	4	5	6	7	8	9	10
Temperature (°C)	13	14	12	10	13	16	14	13	18	16

(a) Find the range of temperatures.

..... °C

(2)

(b) Write down the mode.

..... °C

(1)

(c) Work out the mean temperature.

..... °C

(2)

(Total for Question 5 is 5 marks)

8 The list shows the number of goals scored by Kevin's hockey team in each of 8 matches.

2 1 7 2 12 6 2 4

(a) Find the mode.

.....

(1)

(b) Work out the range.

.....

(2)

In the 9th match, Kevin's hockey team scored 5 goals.

(c) Work out the median number of goals scored in the 9 matches.

.....

(2)

(Total for Question 8 is 5 marks)

16 Julie is x years old.
Kevin is $x + 3$ years old.
Omar is $2x$ years old.

Write an expression, in terms of x, for the mean of their ages.

.....

(Total for Question 16 is 2 marks)

9 Here are the heights, in metres, that 10 men jumped in a high jump competition.

2.19 2.23 2.23 2.23 2.26 2.28 2.29 2.29 2.31 2.33

(a) For these heights, find

(i) the mode,

..... m

(ii) the mean,

..... m

(iii) the range.

..... m

(4)

In a high jump competition for women, the heights, in metres, that 10 women jumped were recorded.
For these heights

the mean was 1.95 m
the range was 0.18 m

(b) Compare the heights that the men jumped with the heights that the women jumped.

.....

.....

.....

.....

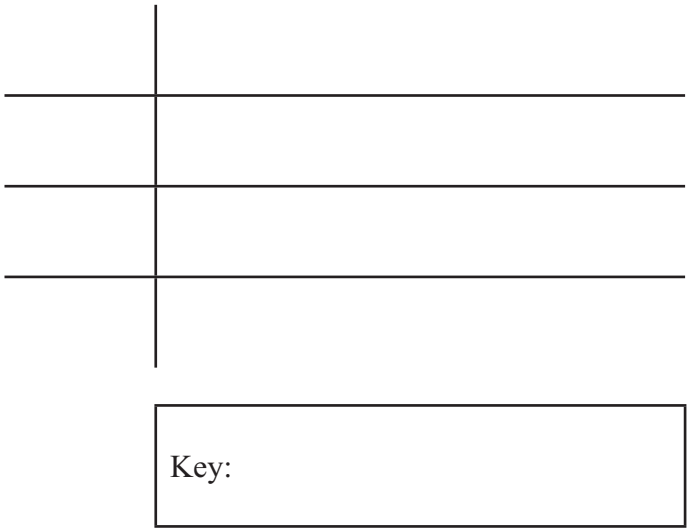
(2)

(Total for Question 9 is 6 marks)

14 Here are the heights, in cm, of 20 sunflower plants.

73	84	78	96	98	84	101	93	71	104
81	92	95	103	100	96	87	91	88	96

(a) Draw an ordered stem and leaf diagram for these heights.



Key:

(3)

(b) Work out the range.

..... cm

(1)

(c) Find the median height.

..... cm

(1)

(Total for Question 14 is 5 marks)

20 The stem and leaf diagram shows some information about the speeds of 25 cars.

2	9
3	1 3 5 6 7 8 8 9
4	2 3 3 4 5 6 8 8 9 9
5	1 2 4 5 6
6	0

Key:

2 | 9 means 29 miles per hour

(a) How many of the 25 cars had a speed of more than 50 miles per hour?

.....

(1)

(b) Find the median speed.

..... miles per hour

(1)

(c) Work out the range of the speeds.

..... miles per hour

(2)

(Total for Question 20 is 4 marks)

13 Kaz rolled a dice 10 times.

Here are her scores.

2 6 5 4 4 2 1 3 4 3

(a) Find the mode.

.....

(1)

(b) Work out the mean.

.....

(2)

(c) Work out the range.

.....

(2)

(Total for Question 13 is 5 marks)

***28** Henry is thinking about having a water meter.

These are the two ways he can pay for the water he uses.

Water Meter	No Water Meter
A charge of £28.20 per year **plus** 91.22p for every cubic metre of water used **1 cubic metre = 1000 litres**	A charge of £107 per year

Henry uses an average of 180 litres of water each day.

Henry wants to pay as little as possible for the water he uses.
Should Henry have a water meter?

(Total for Question 28 is 5 marks)

8 Hestia rolls a dice 24 times.
Here are the scores.

1	2	3	6	4	5	2	1
3	5	6	2	1	2	6	4
2	3	2	4	3	4	3	2

(a) Complete the frequency table.

Score	Tally	Frequency
1		
2		
3		
4		
5		
6		

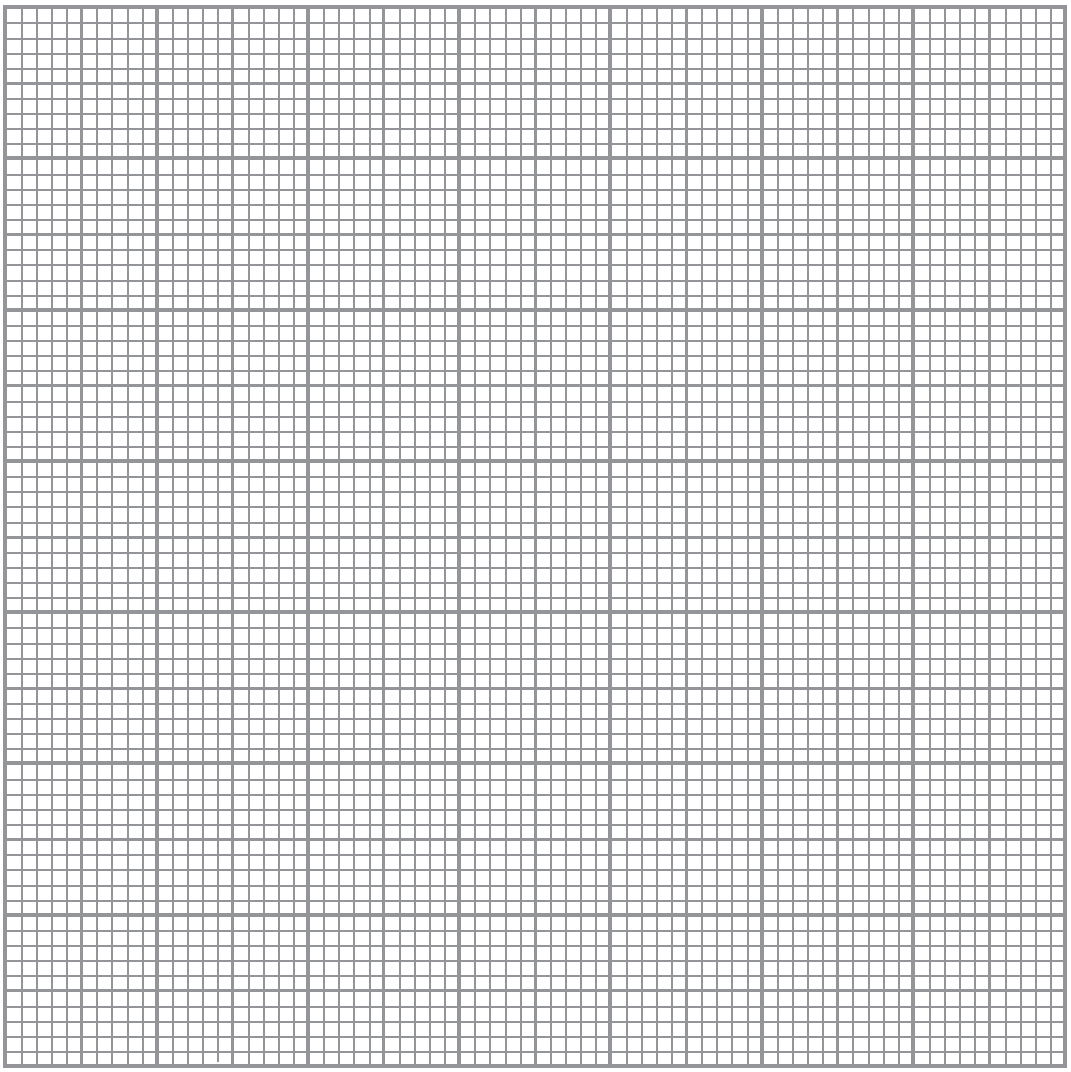
(2)

(b) Write down the mode of the scores.

.....

(1)

(c) Hestia wants to show this information in a suitable diagram or chart.
On the grid, draw a suitable diagram or chart.



(3)

(Total for Question 8 is 6 marks)

10 Abigail is a years old.
Bob is b years old.

Bob is older than Abigail.

(a) Write down, in terms of a and b, an expression for how many years older Bob is than Abigail.

.....

(1)

(b) Write down, in terms of a and b, an expression for the mean age, in years, of Abigail and Bob.

.....

(1)

(Total for Question 10 is 2 marks)

14 Jamal plays 15 games of ten-pin bowling.

Here are his scores.

72	59	75	66	79
75	66	63	89	76
65	79	77	71	83

(a) Draw an ordered stem and leaf diagram to show Jamal's scores.

(3)

Gill plays 15 games of ten-pin bowling.

The table gives some information about her scores.

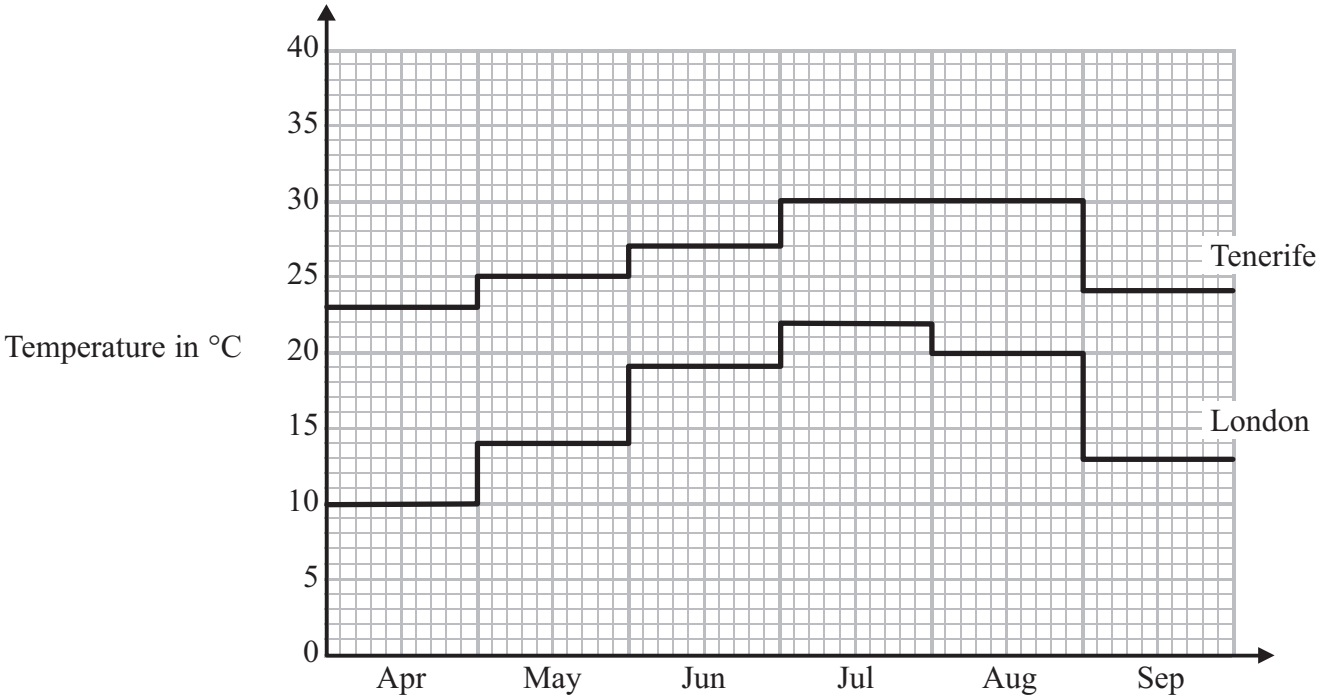
Highest score	95
Lowest score	75
Mean score	80

*(b) Compare the distribution of Jamal's scores and the distribution of Gill's scores.

(5)

(Total for Question 14 is 8 marks)

2 The diagram shows the average midday temperature in Tenerife and in London during 6 months.



(a) During which two months is the average midday temperature in Tenerife the same?

.....

(1)

(b) During which month is there the greatest difference between the average midday temperatures in London and in Tenerife?

.....

(1)

(c) Write down the average midday temperature in May for London.

..... °C

(1)

(d) In September, what is the difference between the average midday temperatures in London and in Tenerife?

..... °C

(2)

(Total for Question 2 is 5 marks)

18 Yan recorded the ages, in years, of a sample of people at a fairground.

He drew this stem and leaf diagram for his results.

1	5	5	7	7	7	7	9
2	0	3	7	8	8		
3	4	6	7	7			
4	2	5	9				
5	0	5					

Key:

1 | 5 represents 15 years of age

(a) Write down the number of people in the sample.

.....

(1)

(b) Write down the mode.

.....years

(1)

(c) Work out the range.

.....years

(2)

(Total for Question 18 is 4 marks)

7 Here is a list of numbers.

4 8 5 9 10 5 6 3 4

(a) Work out the median.

.....

(2)

(b) Work out the mean.

.....

(2)

(Total for Question 7 is 4 marks)

*7 14 students did a history test.

Here are the results.

Girls	3	8	2	4	3	4	4	6
Boys	3	6	3	3	1	4		

Adele says,

"The range of the girls' marks is 1 more than the range of the boys' marks."

Is Adele right?
You must show your working.

(Total for Question 7 is 3 marks)

9 Here are the ages, in years, of 18 children.

12	13	13	11	12	13
11	13	12	10	11	12
13	11	10	13	12	13

(a) Find the mode.

.....

(1)

(b) Work out the median.

.....

(2)

(Total for Question 9 is 3 marks)

10 Here are the ages, in years, of children at a party.

6 8 6 4 5 5 6 7 4 6

(a) Work out the mean.

..... years
(2)

At the party the children were given some sausages to eat.

The table shows information about the numbers of sausages the children ate.

Number of sausages	1	2	3	4	5
Number of children	3	1	4	0	2

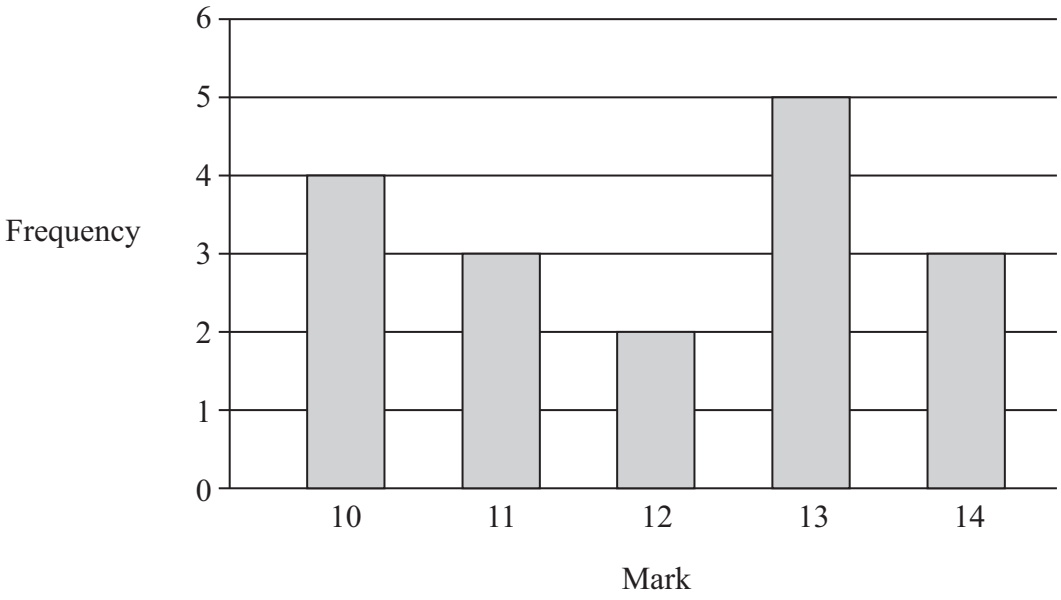
(b) Work out the total number of sausages the children ate.

..... sausages
(2)

(Total for Question 10 is 4 marks)

7 Mrs Smith gave her students a history test.

The bar chart shows information about the students' marks.



(a) Write down the number of students who got 10 marks.

.....

(1)

(b) Write down the mode.

.....

(1)

(c) Which two marks have the same frequency?

..... and .....

(1)

(d) Work out the range.

.....

(2)

(e) How many students did the test?

.....

(2)

(Total for Question 7 is 7 marks)

1 Connor asks 20 people how they usually travel to their judo club.

Here are his results.

walk	bus	walk	bike	car	bus	bus	car	walk	bus
car	bus	bus	car	bike	walk	bike	car	bus	car

(a) Complete the frequency table.

Method of travel	Tally	Frequency
car		
bus		
walk		
bike		

(2)

(b) Write down the mode.

.....

(1)

(Total for Question 1 is 3 marks)

2 Here are nine numbers.

3 2 5 8 2 4 9 1 2

(a) Find the median.

.....

(2)

(b) Find the range.

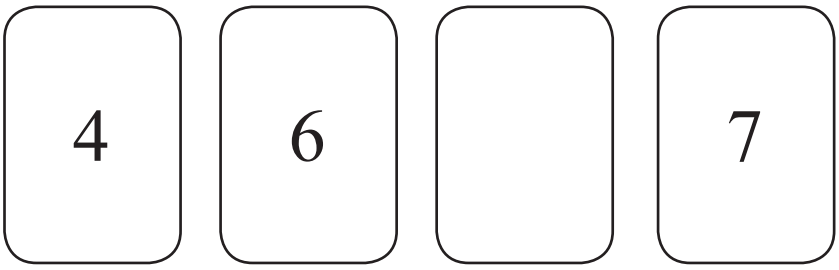
.....

(2)

(Total for Question 2 is 4 marks)

10 Here are four number cards.

One of the cards is turned over so you cannot see the number on it.



The mean of the four numbers is 6

Work out the number you **cannot** see.

.....

(Total for Question 10 is 3 marks)

20 Ed has 4 cards.
There is a number on each card.



The mean of the 4 numbers on Ed's cards is 10

Work out the number on the 4th card.

.....

(Total for Question 20 is 3 marks)

12 Here is the number of goals a hockey team scored in each of 10 matches.

3 4 3 2 5 3 5 6 2 4

Find

(i) the median

.....

(ii) the range

.....

(iii) the mean

.....

(Total for Question 12 is 6 marks)

Question 29

June 2013 | 5MB1F/01 | Original Q5 | Legacy

5 Here is a list of 12 numbers.

20 45 15 12 18 32 25 40 20 15 22 24

(a) Work out the range.

.....

(2)

(b) Find the median.

.....

(2)

(c) Work out the mean.

.....

(2)

(Total for Question 5 is 6 marks)

14 The stem and leaf diagram gives the heights, in cm, of some potato plants.

2	3	5	5	9		
3	0	4	7	7	7	7
4	1	3	4	4		
5	2	6	7	9		
6	3	6	8			

Key

2 | 3 represents 23 cm

(a) Write down the greatest height.

..... cm
(1)

(b) Write down the mode.

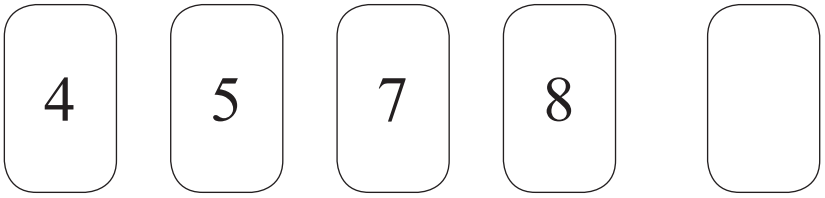
..... cm
(1)

(c) Find the median.

..... cm
(2)

(Total for Question 14 is 4 marks)

12 Here are five cards.



There is a whole number from 0 to 9 on each card.
The number on the last card is hidden.

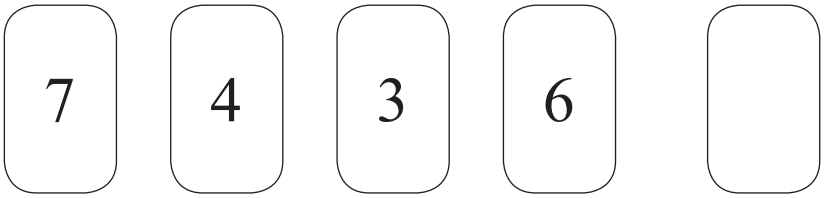
The range of the five numbers is 6

(a) Write down the whole number on the last card.

.....

(1)

Here is a different set of five cards.



There is a different whole number from 0 to 9 on each card.
The number on the last card is hidden.

The median of the numbers on the five cards is 4

(b) Which whole numbers could be on the last card?

.....

(2)

(Total for Question 12 is 3 marks)

14 Vicky counts the number of birds in her garden at 8 am on each of 10 days.

5 3 3 2 0 2 4 2 4 15

(a) Write down the mode.

.....

(1)

(b) Work out the mean.

.....

(2)

Vicky counts the number of birds in her garden at 5 pm on each of 20 days.
She records the information in a frequency table.

Number of birds	Frequency
0	3
1	2
2	3
3	4
4	5
5	3

(c) Work out the total number of birds Vicky records in the frequency table.

.....

(2)

(Total for Question 14 is 5 marks)

5 Lionel recorded the number of typing errors on each page of a letter.

Here are his results.

2 5 1 1 3 2

(a) Work out the median.

.....

(2)

(b) Work out the range.

.....

(2)

Lionel also recorded the number of errors on each page of a book.

The table gives information about his results.

Number of errors on each page	Tally	Frequency
0	𝍸 𝍸 𝍸 |||	
1	𝍸 𝍸 |	
2	𝍸 ||	
3	|||	
4	|	

(c) Complete the frequency column in the table.

(1)

(d) How many pages are there in the book?

..... pages

(1)

(e) Work out the total number of errors in the book.

..... errors

(2)

(Total for Question 5 is 8 marks)

5 Farah recorded the minimum temperature, in °C, on each of seven days in January.

Here are her results.

Day	Mon	Tues	Wed	Thur	Fri	Sat	Sun
Temp (°C)	–2	–1	2	0	–3	4	7

(a) Work out the difference between the temperature on Tuesday and the temperature on Wednesday.

..... °C

(1)

(b) Work out the mean of the temperatures Farah recorded.

..... °C

(2)

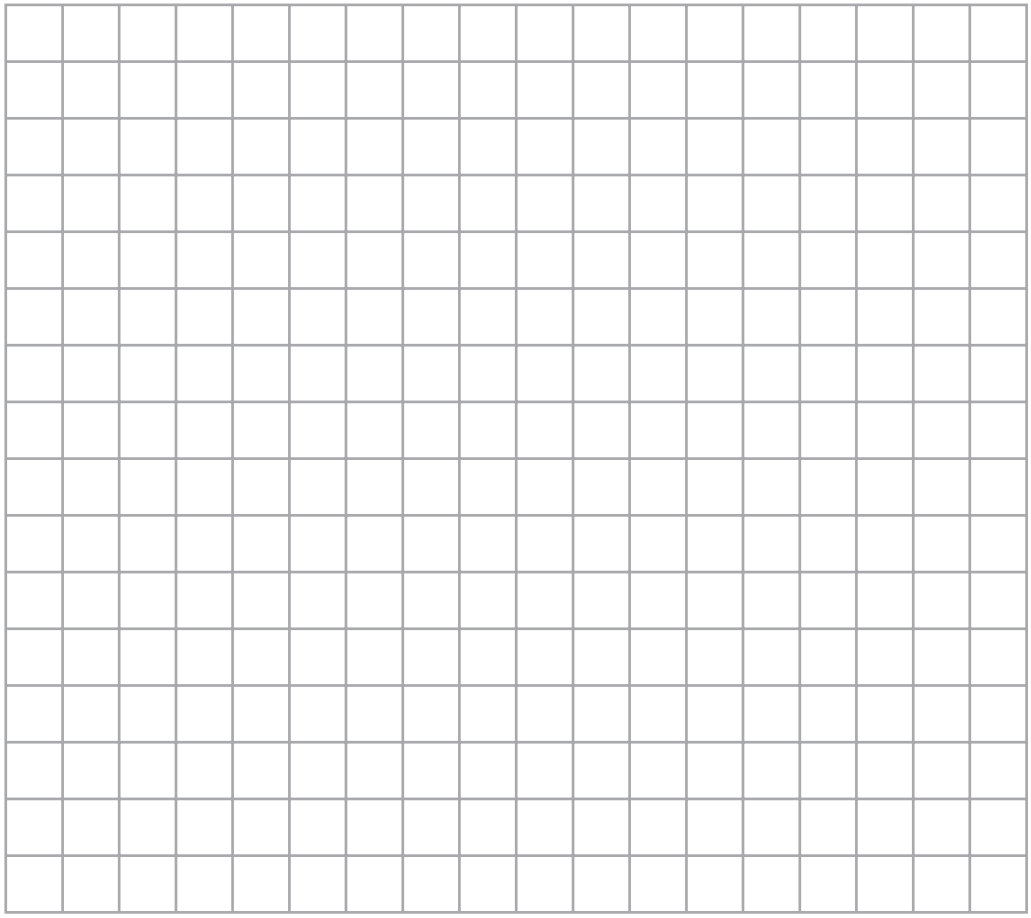
(Total for Question 5 is 3 marks)

***9** The table shows information about the average daily hours of sunshine in Majorca and in Crete for each of five months.

	April	May	June	July	August
Majorca	9	9	11	11	10
Crete	6	8	11	13	12

Simon wants to compare this information.

On the grid, draw a suitable diagram or chart.



(Total for Question 9 is 4 marks)

Question 36

10 Here is a list of numbers.

12 19 12 15 11 15 12 13 17

Find the median.

.....

(Total for Question 10 is 2 marks)

17 Chris works in a cafe.
At noon one day he records the number of customers sitting at each table in the cafe.

Here are his results.

Number of customers sitting at a table	Number of tables
0	4
1	5
2	10
3	7
4	3
5	1

(a) Work out the total number of tables in the cafe.

.....

(1)

(b) Work out the total number of customers sitting at tables in the cafe.

.....

(2)

(c) Work out the mean number of customers sitting at a table.

.....

(2)

(Total for Question 17 is 5 marks)

7 Mr Khan asked the 22 students in his class what activity they wanted to do on a school trip.

Here are the results.

bowling	swimming	roller skating	swimming
swimming	bowling	roller skating	roller skating
roller skating	swimming	roller skating	swimming
swimming	cinema	bowling	cinema
cinema	roller skating	swimming	swimming
swimming	bowling		

(a) Complete the frequency table.

Activity	Tally	Frequency
bowling		
swimming		
roller skating		
cinema		

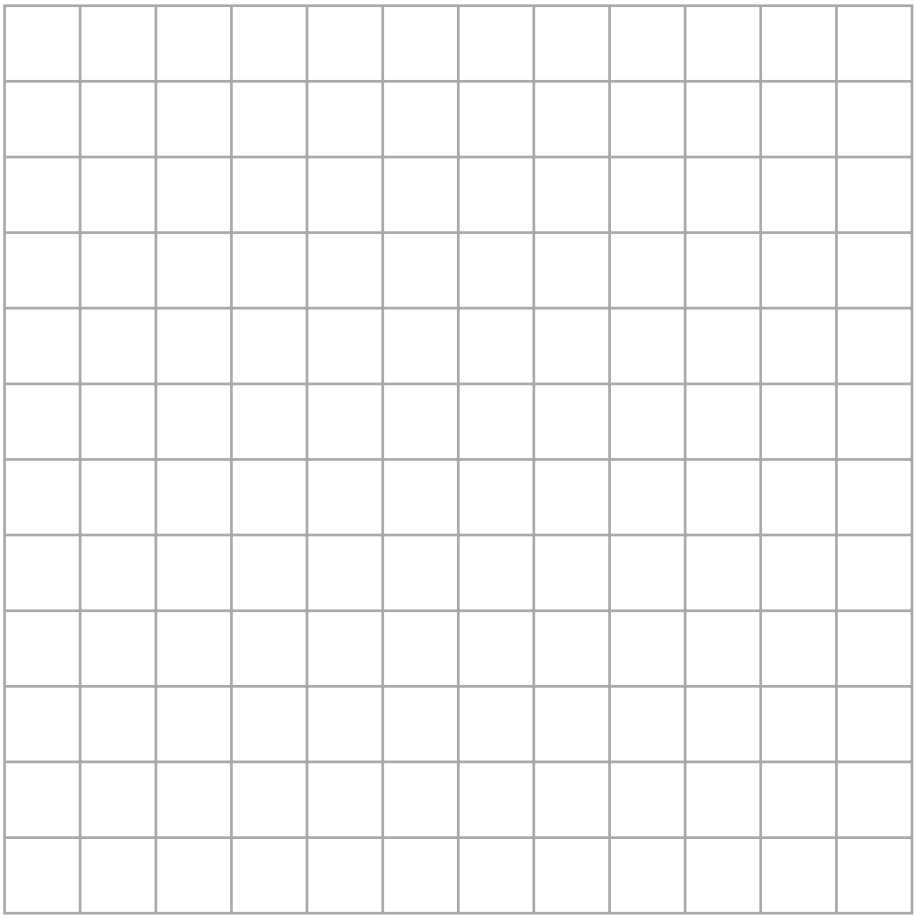
(2)

(b) Write down the mode.

.....

(1)

(c) Show the results of Mr Khan's survey in a suitable diagram.



(3)

(Total for Question 7 is 6 marks)

9 Seven people entered a singing competition.

Here are the number of points that each of the first six people scored.

10 8 5 13 18 15

(a) Work out the range for these six people.

.....

(2)

(b) Work out the median for these six people.

.....

(2)

The mean for the **seven** people was 12

(c) Work out how many points the seventh person scored.

.....

(2)

(Total for Question 9 is 6 marks)

2 Here are the ages of 10 children at a party.

6 5 8 6 7 7 8 8 8 6

(a) Write down the mode.

.....

(1)

(b) Work out the mean age of the children.

.....

(2)

(c) Work out the range of the ages of the children at the party.

.....

(2)

Another child comes to the party.
This child is 7 years old.

(d) Does this change the range of the ages of the children at the party? .....
Explain your answer.

.....

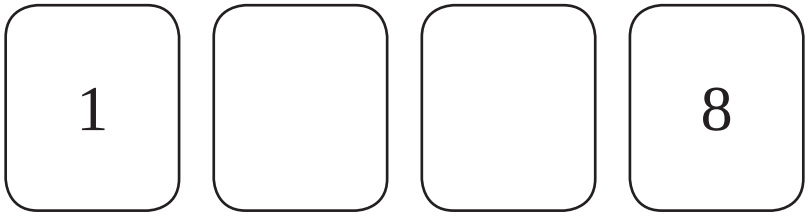
.....

(1)

(Total for Question 2 is 6 marks)

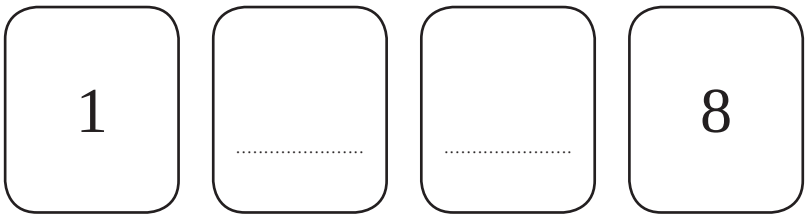
9 Dara has four number cards.
Each card has a positive whole number on it.
Dara puts the cards on a table so that the numbers are in order, starting with the smallest number.

Two of the cards are turned over and you cannot see the numbers on them.

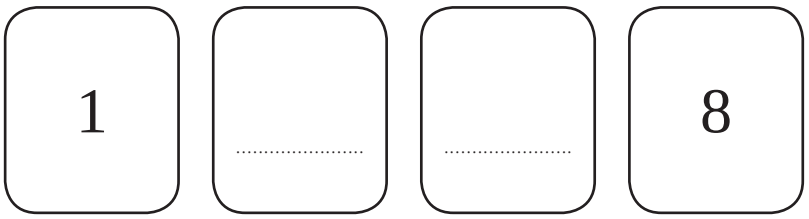


The median of the four numbers is 5

(i) Complete the cards below to show two numbers that could be on the cards that are turned over.



(ii) Complete the cards below to show two other numbers that could be on the cards that are turned over.



(Total for Question 9 is 2 marks)

14 Dan, Harry and Regan sell cars.

Dan sells x cars.
Harry sells 5 more cars than Dan.
Regan sells twice as many cars as Dan.

Write an expression, in terms of x, for the mean number of cars Dan, Harry and Regan sell.

.....

(Total for Question 14 is 2 marks)

15 The stem and leaf diagram gives information about the heights, in cm, of the tomato plants in a garden.

2	3	6	7			
3	1	2	2	4	6	7
4	0	0	3	8	9	
5	2	4	5	6		

Key : 3 | 1 means 31 cm

(a) How many tomato plants are there in the garden?

.....

(1)

(b) Write down the height of the tallest tomato plant.

..... cm

(1)

(c) Work out the range of the heights.

..... cm

(2)

(Total for Question 15 is 4 marks)

10 Here is the number of goals scored by a football team in each of its first 10 games.

3 1 4 2 0 1 1 1 3 2

(a) Write down the mode.

.....

(1)

(b) Work out the mean number of goals for the first 10 games.

.....

(2)

In the 11th game the team scored 4 goals.
In the 12th game the team scored 2 goals.

*(c) Will the mean number of goals for the 12 games be greater than or less than the mean number of goals for the first 10 games?
You must explain your answer.

(2)

(Total for Question 10 is 5 marks)

15 Jim asked each person in his class how many cars their family have.

The frequency table shows the results.

Number of cars	Frequency
0	2
1	12
2	8
3	6
4	2

(a) Write down the mode.

.....

(1)

(b) Work out the total number of cars.

.....

(2)

(Total for Question 15 is 3 marks)

14 Here is a list of 12 numbers.

12 15 18 12 15 12 16 13 17 15 12 17

(a) Write down the mode.

.....

(1)

(b) Work out the range.

.....

(2)

(c) Work out the median.

.....

(2)

(d) Work out the mean.

.....

(2)

(Total for Question 14 is 7 marks)

8 Mrs Smith asked each student in her class to record the numbers of times they used their mobile phone last Saturday.

Here are the results for the boys.

Boys	8	10	8	9	7	9	8	13	14

(a) Work out the median.

.....

(2)

Here are the results for the girls.

Girls	6	8	9	9	10	14	14

*(b) Compare the numbers of times the boys used their mobile phones with the numbers of times the girls used their mobile phones.

(4)

(Total for Question 8 is 6 marks)

9 The table gives information about six energy companies.

Energy company	Gas price increase (%)	Electricity price increase (%)
E-top	9.4	7.7
TMF Energy	10.8	10.8
U Power	8.5	9.0
Plus Power	11.1	9.3
Local Gas	8.4	10.4
KLY	8.2	8.3

(a) Which energy company has the greatest percentage gas price increase?

.....

(1)

(b) Which energy company has the same percentage price increase for both gas and electricity?

.....

(1)

(c) Work out the range of the percentage gas price increases.

.....%

(2)

(Total for Question 9 is 4 marks)

12 Here is a list of 11 numbers.

4 3 –6 2 4 5 4 –5 6 2 3

(a) Write down the mode.

.....

(1)

(b) Find the median.

.....

(2)

(c) Work out the mean.

.....

(2)

(Total for Question 12 is 5 marks)

8 Here are some numbers.

3 6 2 2 5 3

(a) Find the median.

.....

(2)

(b) Work out the range.

.....

(2)

(c) Work out the mean.

.....

(2)

(Total for Question 8 is 6 marks)

10 Steve went on holiday.
He recorded the number of photos he took each day.

Here are his results.

20 14 21 19 27 31 19 19 24 21

(a) Find the mode.

.....

(1)

(b) Work out the mean.

.....

(2)

Steve saves his photos on a memory card.

The memory card has 1000 megabytes of memory space.
Each photo uses 2.4 megabytes of memory space.

Steve has saved 320 photos on the memory card.

(c) Work out how many more photos Steve can save on the memory card.

.....

(3)

(Total for Question 10 is 6 marks)

20 Chloe recorded the test marks of 20 students.

The stem and leaf diagram shows this information.

1	5 7 8 9
2	0 0 3 7 8
3	1 4 5 6 8 9
4	1 2 2 6 7

Key:
1 | 5 means 15 marks

(a) Find the median mark.

.....

(2)

(b) Work out the range of the marks.

.....

(2)

The pass mark for the test is 25

(c) How many of the 20 students did **not** pass the test?

.....

(1)

(Total for Question 20 is 5 marks)

6 Liz is a vet.
She writes down the type of each animal she treats one morning.

cat	rabbit	cat	dog	rabbit	cat
hamster	dog	dog	cat	rabbit	dog
dog	rabbit	dog	dog	cat	dog

(a) Complete the frequency table.

Type of animal	Tally	Frequency
cat		
hamster		
rabbit		
dog		

(2)

(b) Write down the mode.

.....

(1)

(Total for Question 6 is 3 marks)

11 The stem and leaf diagram shows the number of passengers on each of 24 buses.

0	7 8
1	6 7 8
2	2 6 7 9
3	0 4 5 6 7 7 8
4	0 2 4 5 9
5	1 2 3

Key: 1 | 6 means 16 passengers

(a) Work out the range.

.....

(1)

(b) Work out the median.

.....

(2)

(c) How many buses had less than 20 passengers?

.....

(1)

(Total for Question 11 is 4 marks)

16 Alex is x cm tall.

Bob is 10 cm taller than Alex.
Cath is 4 cm shorter than Alex.

Write an expression, in terms of x, for the mean of their heights in centimetres.

.....

(Total for Question 16 is 3 marks)

22 The table shows some information about the ages of 60 teachers.

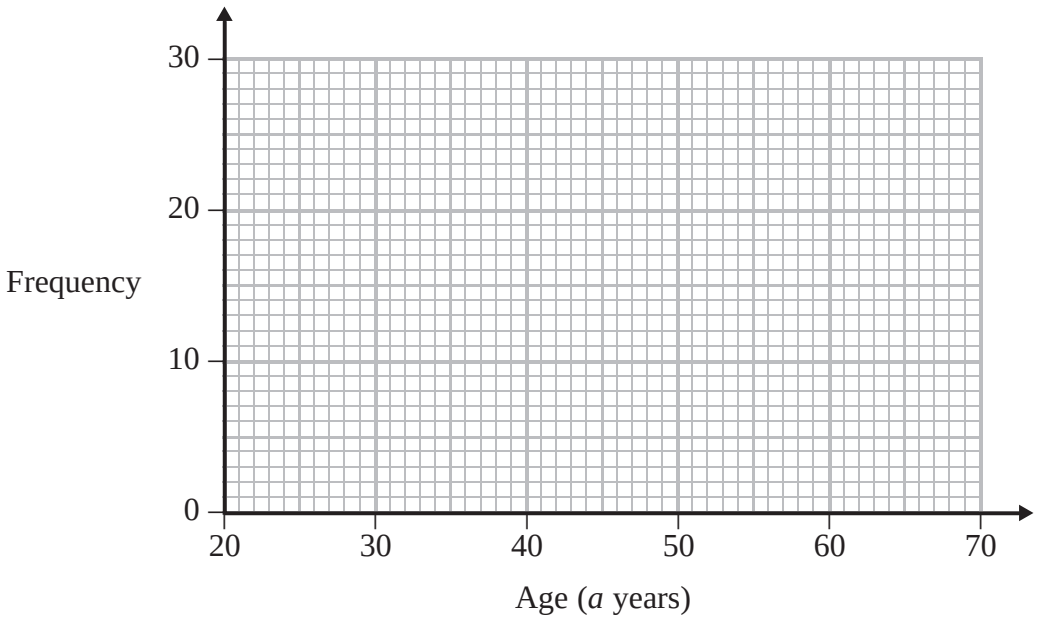
Age (a years)	Frequency
$20 < a \leqslant 30$	6
$30 < a \leqslant 40$	16
$40 < a \leqslant 50$	14
$50 < a \leqslant 60$	22
$60 < a \leqslant 70$	2

(a) Write down the modal class interval.

.....

(1)

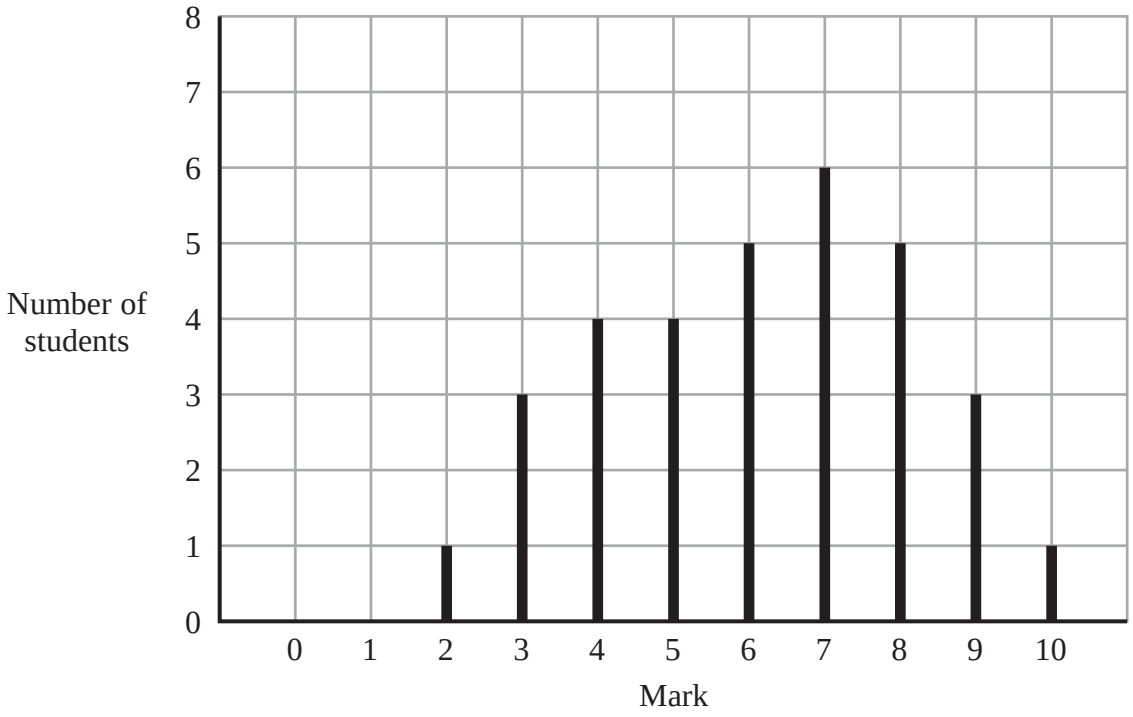
(b) Draw a frequency polygon for the information in the table.



(2)

(Total for Question 22 is 3 marks)

6 The graph shows information about the test marks of Mr Gilbert's science class.



(a) Work out the number of students who did the test.

.....

(2)

(b) Write down the mode.

.....

(1)

(c) Work out the range of the test marks.

.....

(2)

(Total for Question 6 is 5 marks)

19 The table shows information about the numbers of Year 10 students absent from Ellen's school last week.

	Monday	Tuesday	Wednesday	Thursday	Friday
Number of students	12	6	7	10	13

(a) Work out the mean number of Year 10 students absent each day.

.....

(2)

Ellen's school has a total of 240 Year 10 students.

(b) What percentage of Year 10 students were absent on Monday?

.....%

(2)

(Total for Question 19 is 4 marks)

7 Monique recorded the total number of eggs laid by each of 11 hens last week.
Here are her results.

5 4 5 3 1 7 2 5 2 3 5

(a) Find the mode.

.....

(1)

(b) Find the median.

.....

(2)

(c) Work out the range.

.....

(2)

(Total for Question 7 is 5 marks)

11 The table shows the temperatures in some cities at midnight one night.

City	Temperature at midnight
Cardiff	+4 °C
Leeds	−2 °C
London	+3 °C
Newcastle	−4 °C
Truro	+4 °C

(a) Which city has the lowest temperature at midnight?

.....

(1)

(b) Work out the difference between the temperatures at midnight in Leeds and in Truro.

..... °C

(1)

Between midnight and noon the next day the temperature in London fell by 7 °C.

(c) Work out the temperature at noon the next day in London.

..... °C

(1)

(d) Work out the mean of the five temperatures in the table.

..... °C

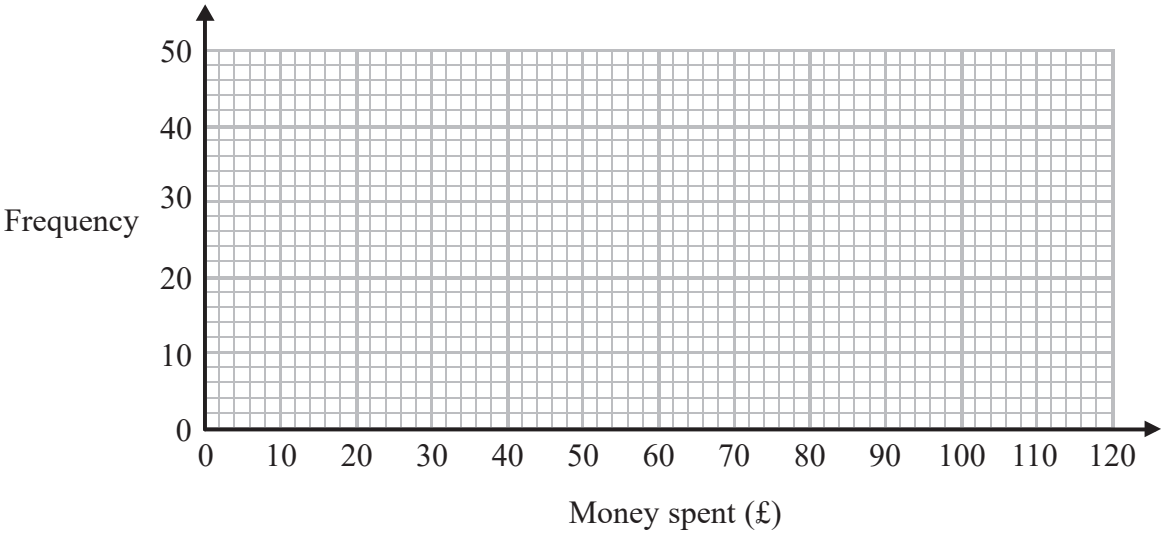
(2)

(Total for Question 11 is 5 marks)

20 The table gives information about the money, £A, some people spent on an internet site one day.

Money spent (£A)	Frequency
$0 < A \leqslant 20$	10
$20 < A \leqslant 40$	15
$40 < A \leqslant 60$	25
$60 < A \leqslant 80$	40
$80 < A \leqslant 100$	6

(a) On the grid, draw a frequency polygon for this information.



(2)

(b) Write down the modal class interval.

.....

(1)

(Total for Question 20 is 3 marks)

14 Here are the ages, in years, of 10 children.

4 9 6 7 3 5 2 6 4 6

(a) Find the mode.

..... years
(1)

(b) Work out the median.

..... years
(2)

(c) Work out the range.

..... years
(2)

(Total for Question 14 is 5 marks)

13 The diagram shows a tree and a man.



The man is of average height.
The tree and the man are drawn to the same scale.

(a) Write down an estimate for the real height, in metres, of the man.

..... metres
(1)

(b) Find an estimate for the real height, in metres, of the tree.

..... metres
(2)

(Total for Question 13 is 3 marks)

20 Olly drove 56 km from Liverpool to Manchester.
He then drove 61 km from Manchester to Sheffield.

Olly's average speed from Liverpool to Manchester was 70 km/h.
Olly took 75 minutes to drive from Manchester to Sheffield.

(a) Work out Olly's average speed for his total drive from Liverpool to Sheffield.

..... km/h
(4)

Janie drove from Barnsley to York.

Janie's average speed from Barnsley to Leeds was 80 km/h.
Her average speed from Leeds to York was 60 km/h.

Janie says that the average speed from Barnsley to York can be found by working out the mean of 80 km/h and 60 km/h.

(b) If Janie is correct, what does this tell you about the two parts of Janie's journey?

.....

.....

(1)

(Total for Question 20 is 5 marks)

6 Here is a list of numbers.

12 15 14 17 22 19 13

Bridgit says,

"To work out the median you find the middle number,
so the median of these numbers is 17"

Bridgit's answer is **not** correct.

(a) What is wrong with Bridgit's method?

.....

.....

(1)

(b) Work out the range of the numbers in the list.

.....

(2)

(c) Work out the mean of the numbers in the list.

.....

(2)

(Total for Question 6 is 5 marks)

17 The table shows some information about the dress sizes of 25 women.

Dress size	Number of women
8	2
10	9
12	8
14	6

(a) Find the median dress size.

.....

(1)

3 of the 25 women have a shoe size of 7

Zoe says that if you choose at random one of the 25 women, the probability that she has either a shoe size of 7 or a dress size of 14 is $\frac{9}{25}$ because

$$\frac{3}{25} + \frac{6}{25} = \frac{9}{25}$$

(b) Is Zoe correct?
You must give a reason for your answer.

.....

.....

(1)

(Total for Question 17 is 2 marks)

10 Jake and Sarah each played a computer game six times.

Their scores for each game are shown below.

Jake	10	9	8	11	12	8
Sarah	2	10	7	14	4	10

(a) Who had the most consistent scores, Jake or Sarah?
You must give a reason for your answer.

.....

.....

(1)

Jake played a different game 20 times.

The stem and leaf diagram shows information about his scores.

0	9
1	2 3 3 4 5
2	5 6 6 6 6 7
3	1 3 4 6 8
4	0 2 9

Key
1 | 2 represents 12 points

Jake said his modal score was 6 points because 6 occurs most often in the diagram.

(b) Is Jake correct?
You must explain your answer.

.....

.....

(1)

(Total for Question 10 is 2 marks)

11 There are 30 children in a nursery school.
At least 1 adult is needed for every 8 children in the nursery.

(a) Work out the least number of adults needed in the nursery.

.....

(2)

2 more children join the nursery.

(b) Does this mean that more adults are needed in the nursery?
You must give a reason for your answer.

.....

(1)

(Total for Question 11 is 3 marks)

27 The table shows information about the weekly earnings of 20 people who work in a shop.

Weekly earnings (£x)	Frequency
$150 < x \leqslant 250$	1
$250 < x \leqslant 350$	11
$350 < x \leqslant 450$	5
$450 < x \leqslant 550$	0
$550 < x \leqslant 650$	3

(a) Work out an estimate for the mean of the weekly earnings.

£.....

(3)

Nadiya says,

"The mean may **not** be the best average to use to represent this information."

(b) Do you agree with Nadiya?
You must justify your answer.

.....

.....

(1)

(Total for Question 27 is 4 marks)

4 Ken buys some fruit.

He buys apples, bananas, peaches and oranges.
Ken buys

4 apples	weighing 125 g each
2 bananas	weighing 170 g each
3 peaches	weighing 135 g each

Each orange has a weight of 90 g.

The fruit has a total weight of 1.785 kg.

(a) Work out how many oranges Ken buys.

.....

(3)

Jane wants to buy 15 tomatoes.
She asks for 1 kg of tomatoes at a shop.
Jane assumes that each tomato has a weight of 75 g.

(b) (i) If Jane's assumption is correct, will she get 15 tomatoes?
You must show how you get your answer.

(2)

(ii) If Jane's assumption is **not** correct, could she get 15 tomatoes?
Justify your answer.

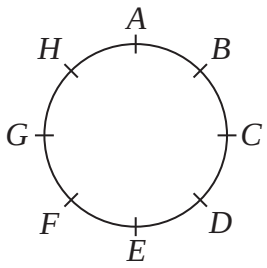
.....

.....

(1)

(Total for Question 4 is 6 marks)

18 Hasmeet walks once round a circle with diameter 80 metres.



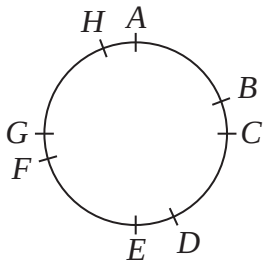
There are 8 points equally spaced on the circumference of the circle.

(a) Find the distance Hasmeet walks between one point and the next point.

.....m

(2)

Four of the points are moved, as shown in the diagram below.



Hasmeet walks once round the circle again.

(b) Has the mean distance that Hasmeet walks between one point and the next point changed? You must give a reason for your answer.

.....

.....

(1)

(Total for Question 18 is 3 marks)

19 The table shows information about the heights of 80 children.

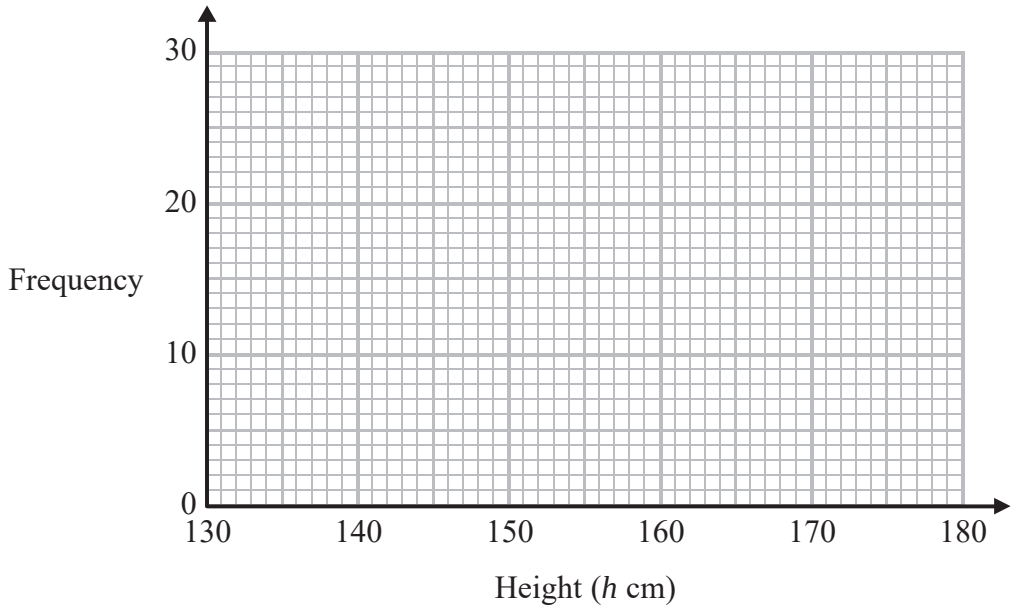
Height (h cm)	Frequency
$130 < h \leqslant 140$	4
$140 < h \leqslant 150$	11
$150 < h \leqslant 160$	24
$160 < h \leqslant 170$	22
$170 < h \leqslant 180$	19

(a) Find the class interval that contains the median.

.....

(1)

(b) Draw a frequency polygon for the information in the table.



(2)

(Total for Question 19 is 3 marks)

Question 73

15 Jenny is asked to find the value of $12 - 2 \times 4$

Here is her working.

$$12 - 2 \times 4 = 10 \times 4 = 40$$

Jenny's answer is wrong.

(a) Explain what Jenny has done wrong.

.....

.....

(1)

Rehan is asked to find the range of the numbers 3 1 8 7 5

Here is his working.

$$\text{Range} = 5 - 3 = 2$$

This is wrong.

(b) Explain why.

.....

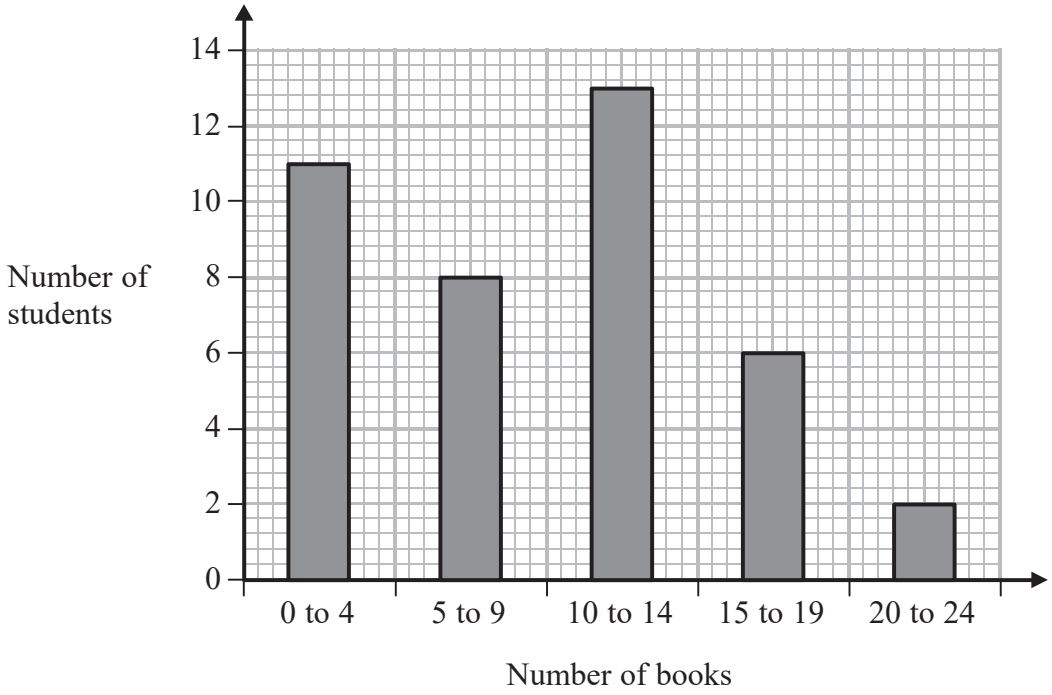
.....

(1)

(Total for Question 15 is 2 marks)

23 Fran asks each of 40 students how many books they bought last year.

The chart below shows information about the number of books bought by each of the 40 students.



(a) Work out the percentage of these students who bought 20 or more books.

.....%

(2)

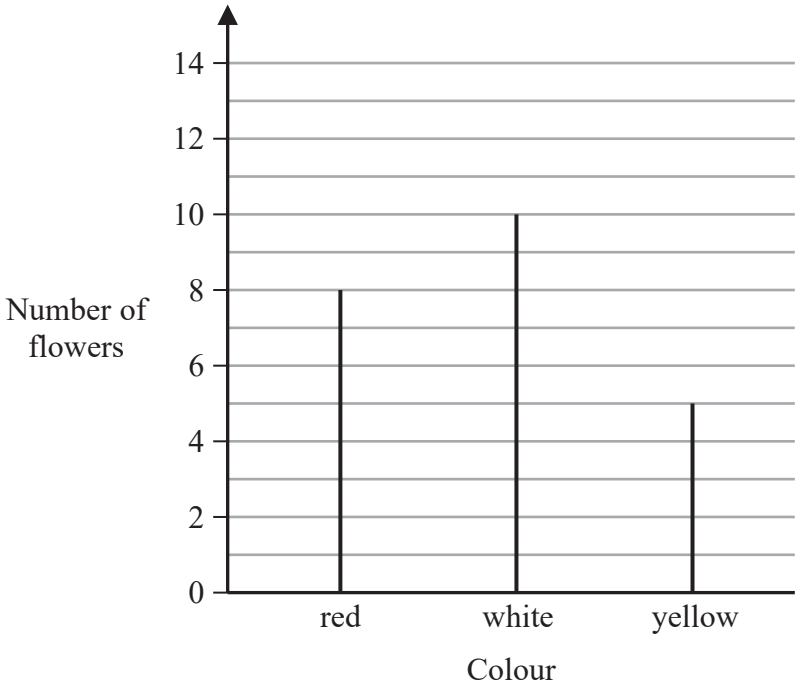
(b) Show that an estimate for the mean number of books bought is 9.5
You must show all your working.

(4)

(Total for Question 23 is 6 marks)

7 In Adam's garden, the flowers are only red or white or yellow or blue.

The chart shows the number of red flowers, the number of white flowers and the number of yellow flowers.



The total number of flowers is 30

(a) Work out the number of blue flowers.

.....

(2)

(b) Write down the mode.

.....

(1)

(Total for Question 7 is 3 marks)

18 The table shows information about the numbers of points scored by 30 students in a quiz.

Number of points	Frequency
0	4
1	3
2	7
3	5
4	6
5	5

(a) Find the modal number of points.

.....

(1)

(b) Work out the total number of points scored.

.....

(2)

(Total for Question 18 is 3 marks)

26 The table shows information about the heights of 80 plants.

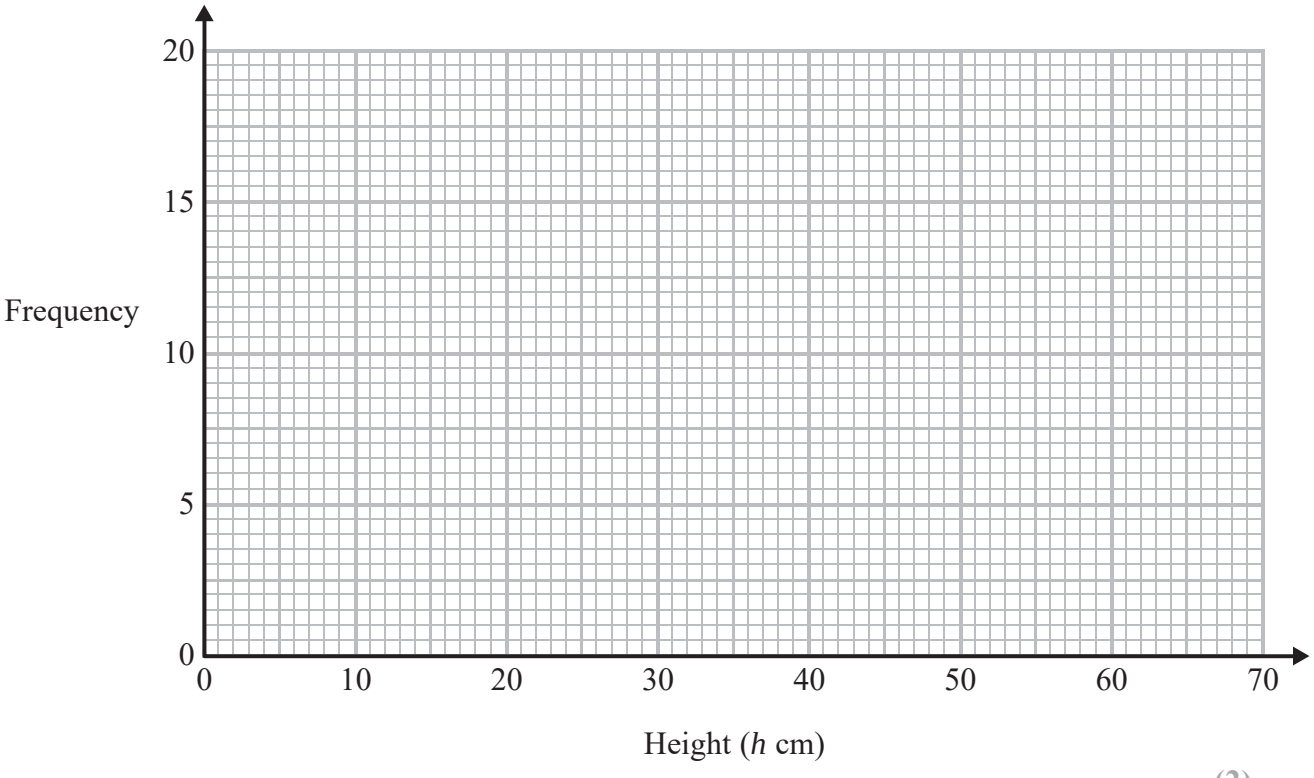
Height (h cm)	Frequency
$10 < h \leqslant 20$	7
$20 < h \leqslant 30$	13
$30 < h \leqslant 40$	14
$40 < h \leqslant 50$	12
$50 < h \leqslant 60$	16
$60 < h \leqslant 70$	18

(a) Find the class interval that contains the median.

.....

(1)

(b) On the grid, draw a frequency polygon for the information in the table.



(2)

(Total for Question 26 is 3 marks)

Question 78

25 4 red bricks have a mean weight of 5 kg.
5 blue bricks have a mean weight of 9 kg.
1 green brick has a weight of 6 kg.

Donna says,

"The mean weight of the 10 bricks is less than 7 kg."

Is Donna correct?
You must show how you get your answer.

(Total for Question 25 is 3 marks)

9 Here is a list of numbers.

6 4 8 9 4 3

(a) Work out the median.

.....

(2)

Aisha picks at random one of the numbers.

(b) What is the probability that she picks an odd number?

.....

(2)

Clara has five cards.
There is a number on each card.
Two of the numbers are hidden.

3	?	8	5	?

The mode of the five numbers is 3
The mean of the five numbers is 5

(c) Work out the two numbers that are hidden.

..... , ...

(2)

(Total for Question 9 is 6 marks)

13 The stem and leaf diagram below gives information about the ages of people in a social club.

3	1	4	5			
4	0	2	2	5	6	
5	0	1	7	7	8	9
6	3	4	5	9		
7	0	4				

Key: 4|2 represents 42 years

Find the range of these ages.

..... years

(Total for Question 13 is 2 marks)

25 The table gives information about the times taken, in seconds, by 18 students to run a race.

Time (t seconds)	Frequency
$5 < t \leqslant 10$	1
$10 < t \leqslant 15$	2
$15 < t \leqslant 20$	7
$20 < t \leqslant 25$	8

Work out an estimate for the mean time.
Give your answer correct to 3 significant figures.

..... seconds

(Total for Question 25 is 3 marks)

16 The table gives information about the number of points scored by each of 16 students in a game.

Number of points	Frequency
0	1
1	3
2	5
3	4
4	3

Tina worked out the median of the number of points scored to be 5

(a) Explain why it is **not** possible for the median to be 5

.....

.....

.....

(1)

Tina also worked out the total number of points scored by the 16 students in the game.
Here is her working.

$$(0 \times 1) + (1 \times 3) + (2 \times 5) + (3 \times 4) + (4 \times 3) = 1 + 3 + 10 + 12 + 12 = 38$$

Tina made a mistake in her working to find the total number of points scored.

(b) Describe the mistake that Tina made.

.....

.....

.....

(1)

(Total for Question 16 is 2 marks)

26 The table shows information about the heights, in cm, of a group of Year 9 girls.

least height	150 cm
median	165 cm
greatest height	170 cm

This stem and leaf diagram shows information about the heights, in cm, of a group of 15 Year 9 boys.

15	8 9 9
16	4 5 7 7 8
17	0 3 4 4 7
18	0 2

Key: 15 | 8 represents 158 cm

Compare the distribution of the heights of the girls with the distribution of the heights of the boys.

.....

.....

.....

.....

.....

.....

(Total for Question 26 is 3 marks)

20 Akhtar, Ben and Carl each have some money.

Akhtar has £65
Ben has £100
Carl has three £5 notes, one £20 note and some £10 notes.

The mean amount of money per person is £80

How many £10 notes does Carl have?

.....

(Total for Question 20 is 4 marks)

3 Here is a list of numbers.

3 3 3 3 4 4 5 7 8

Write down the mode of the numbers.

.....

(Total for Question 3 is 1 mark)

15 The table shows information about the number of social media accounts used by each of 300 students.

Number of social media accounts	Frequency
0	3
1	57
2	84
3	75
4	81

(a) Work out the total number of social media accounts used by these students.

.....

(2)

(b) Find the median number of social media accounts used by these students.

.....

(2)

(Total for Question 15 is 4 marks)

18 This sign was in a doctor's waiting room.

> 115 appointments were missed last month.
>
> These missed appointments were a total of 25.3 hours.

Work out the mean length of time for each missed appointment.
Give your answer in minutes.

..... minutes

(Total for Question 18 is 3 marks)

14 Here is the shoe size of each of 12 boys in a class.

4 5 6 6 6 7 7 8 8 8 8 9

(a) Find the median.

.....

(1)

(b) Work out the range.

.....

(1)

For the shoe sizes of each of 12 girls in the class,

the median size is 6
the range is 3

(c) Compare the distribution of the shoe sizes of the boys with the distribution of the shoe sizes of the girls.

.....

.....

.....

.....

.....

.....

(2)

(Total for Question 14 is 4 marks)

7 Here is a list of 8 letters.

B C A A A A B A

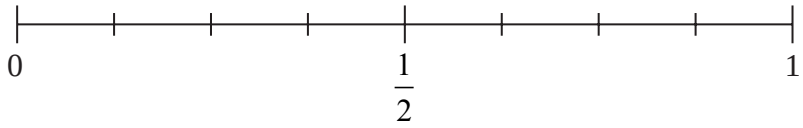
(a) Write down the mode.

.....

(1)

One of the 8 letters is going to be picked at random.

(b) (i) On the probability scale, mark with a cross (×) the probability that this letter will be B.



(1)

(ii) Find the probability that this letter will be C.

.....

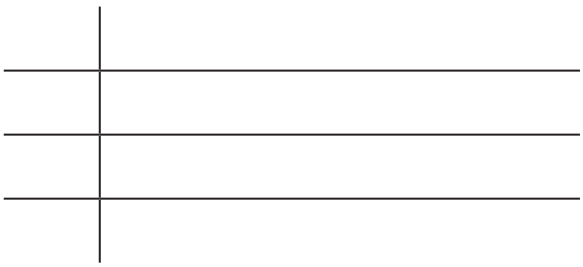
(1)

(Total for Question 7 is 3 marks)

15 Hetvi asked her friends how many stickers they each have in their collection.
Here are her results.

77	86	94	87	71	98
74	103	71	85	82	84
97	91	88	89	75	

(a) Show this information in a stem and leaf diagram.



Key:

(3)

(b) Find the median number of stickers.

.....

(2)

(Total for Question 15 is 5 marks)

Question 91

November 2022 | 1MA1/2F | Original Q17

17 The table shows information about the heights of 80 teenagers.

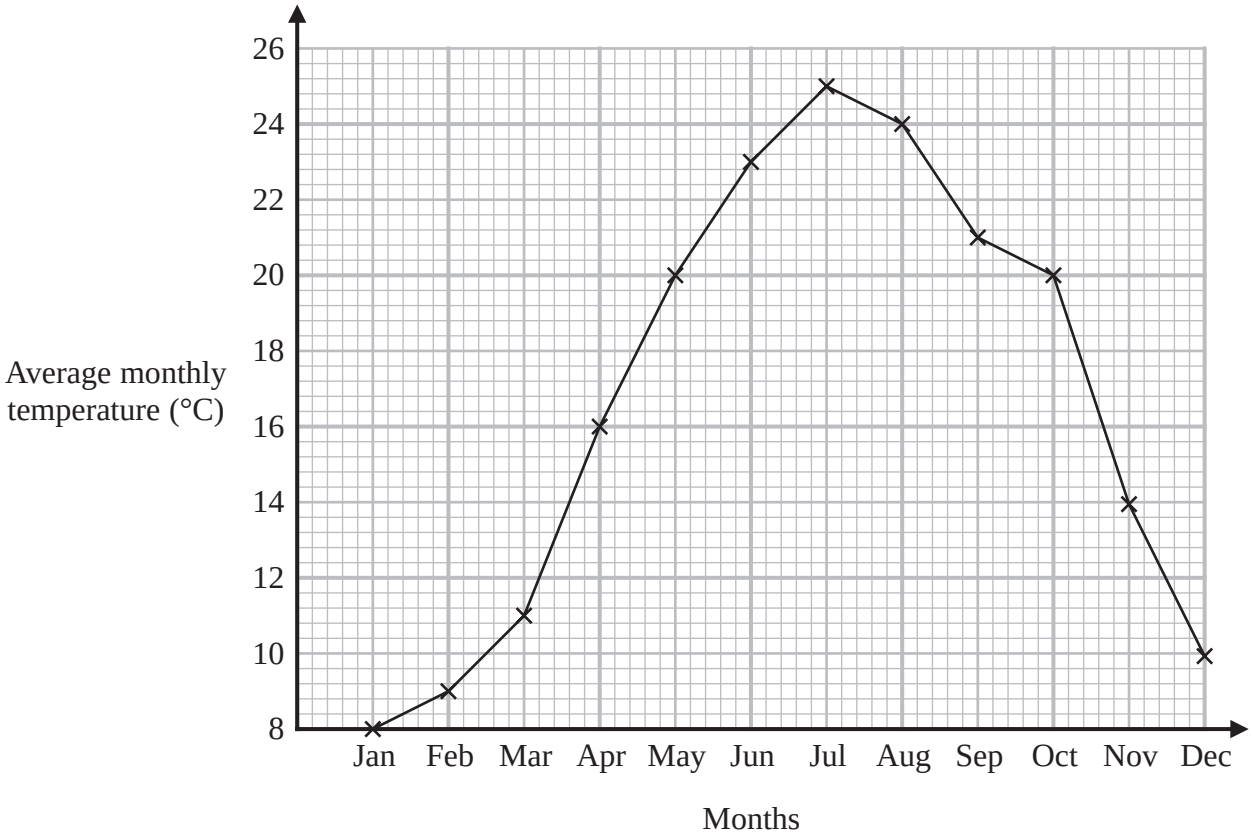
Height (h cm)	**Frequency**
$150 < h \leqslant 160$	8
$160 < h \leqslant 170$	14
$170 < h \leqslant 180$	24
$180 < h \leqslant 190$	30
$190 < h \leqslant 200$	4

Work out an estimate for the mean height of the teenagers.

..... cm

(Total for Question 17 is 3 marks)

6 The graph shows information about the average monthly temperature, in °C, in Amman.



(a) For how many months was the average monthly temperature greater than 16°C?

.....

(1)

(b) Write down the two months that had the same average monthly temperature.

..... and .....

(1)

(Total for Question 6 is 2 marks)

8 Four students play a game.
The table shows the number of points each student has.

Student	Ali	Barbara	Calliope	Danesh
Number of points	143	121	45	19

Barbara has more points than Danesh.

(a) How many more?

.....

(1)

(b) Work out the mean number of points.

.....

(2)

(Total for Question 8 is 3 marks)

28 There are 30 women and 20 men at a gym.

The mean height of all 50 people is 167.6 cm
The mean height of the 20 men is 182 cm

Work out the mean height of the 30 women.

..... cm

(Total for Question 28 is 3 marks)

12 Here are 6 numbers.

13 5 4 9 3 8

Work out the mean.

.....

(Total for Question 12 is 2 marks)

17 There are 3 cinemas **A**, **B** and **C**.

The mean number of seats per cinema is 380

There are 350 seats in cinema **A**.
There are 250 seats in cinema **B**.

Work out the number of seats in cinema **C**.

.....

(Total for Question 17 is 4 marks)

9 The table shows the number of books read by four people in one month.

Person	Number of books
Ximena	7
Martha	9
Kezia	1
Tabby	5

(a) Work out the median number of books.

.....

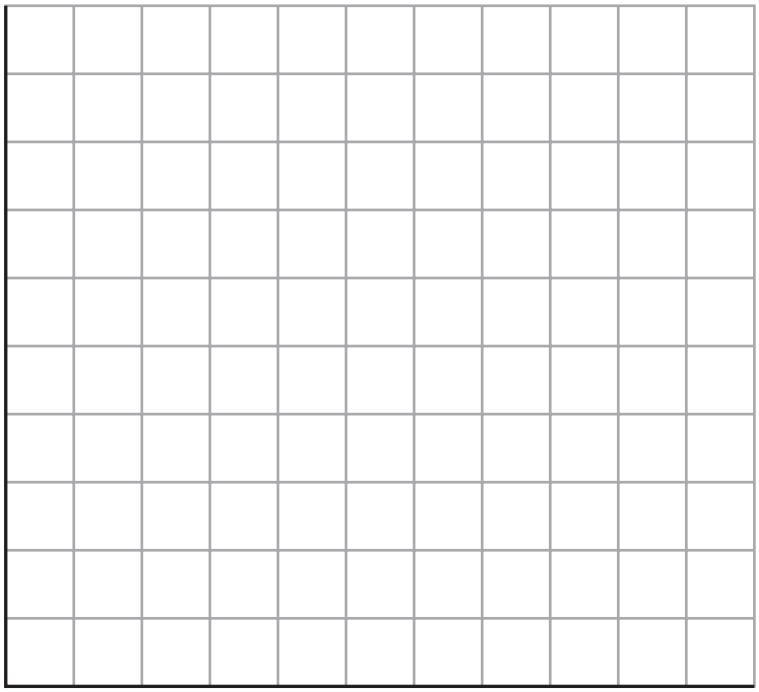
(2)

(b) Find the range.

.....

(1)

(c) On the grid, draw a bar chart to show the information in the table.

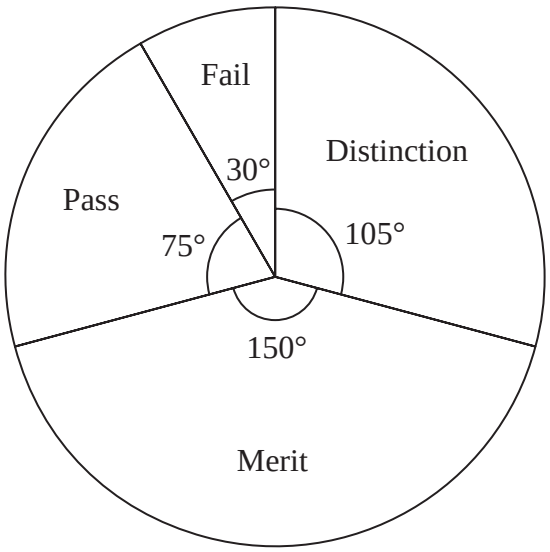


(3)

(Total for Question 9 is 6 marks)

12 Some students took a guitar exam.

The pie chart shows information about the grades the students got.



(a) Write down the modal grade.

.....

(1)

7 students got distinction.

(b) Work out the total number of students who took the guitar exam.

.....

(3)

(Total for Question 12 is 4 marks)

Question 99

1 Here is a list of numbers.

2 4 4 7 8

Work out the range of these numbers.

.....

(Total for Question 1 is 1 mark)

8 Miss Bailey asked 24 students where they each wanted to go on a school trip.

Here are the results.

museum	castle	castle	farm
farm	castle	farm	farm
castle	farm	castle	castle
castle	farm	castle	museum
museum	farm	castle	museum
museum	museum	castle	castle

(a) Complete the frequency table.

Place	Tally	Frequency
castle		
farm		
museum		

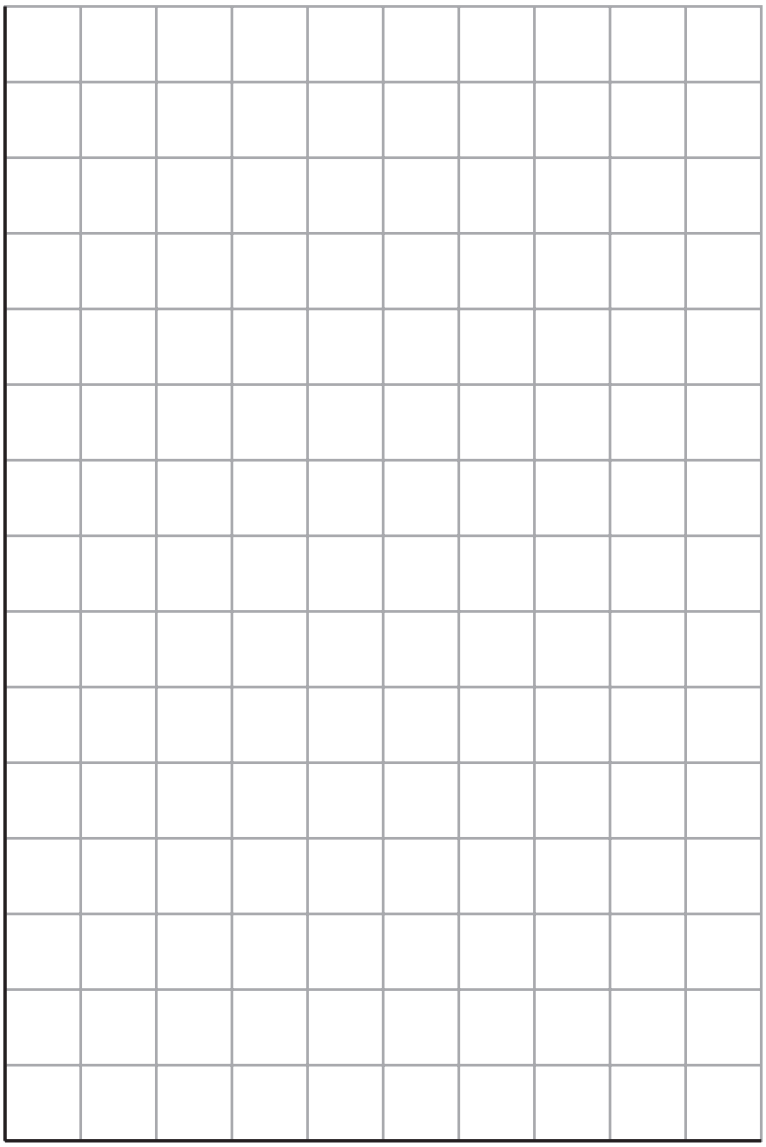
(2)

(b) Write down the place that is the mode.

.....

(1)

(c) Draw a bar chart to show the results.



(3)

(Total for Question 8 is 6 marks)

21 The mean length of 5 sticks is 4.2 cm.

Nawal measured the length of one of the sticks as 7 cm.

(a) Work out the mean length of the other 4 sticks.

..... cm

(3)

Nawal made a mistake.
The stick was not 7 cm long.
It was 17 cm long.

(b) How does this affect your answer to part (a)?

.....

.....

.....

(1)

(Total for Question 21 is 4 marks)

22 Seija works at a weather station.
The table gives information about the temperature, T °C, at midday for each of 50 cities in the UK on Tuesday.

Temperature (T °C)	Frequency
$10 < T \leqslant 15$	2
$15 < T \leqslant 20$	8
$20 < T \leqslant 25$	13
$25 < T \leqslant 30$	21
$30 < T \leqslant 35$	6

(a) Calculate an estimate for the mean temperature.

.....°C
(3)

Seija says,

> "The median temperature is 22.5 °C because 22.5 is the middle number in the middle group."

(b) Is Seija correct?
Give a reason for your answer.

.....

.....

.....

(1)

(Total for Question 22 is 4 marks)

15 Tessa recorded the times that 15 adults took to complete a run.
She showed her results in a stem and leaf diagram.

4	5 9
5	3 7 8
6	1 2 4 5 7 7
7	2 6 7
8	1

Key:
4 | 5 represents 45 minutes

(a) Find the median.

..... minutes
(1)

(b) Find the range.

..... minutes
(2)

Tessa also recorded the times that 15 children took to complete the run.

For the children, the median was 75 minutes.

(c) Compare the times that the adults took with the times that the children took.

.....

.....

.....

(1)

(Total for Question 15 is 4 marks)

28 The table shows information about the weights of 120 oranges.

Weight (w grams)	Frequency
$50 < w \leqslant 100$	34
$100 < w \leqslant 150$	29
$150 < w \leqslant 200$	27
$200 < w \leqslant 250$	19
$250 < w \leqslant 300$	11

(a) Find the class interval that contains the median.

.....

(1)

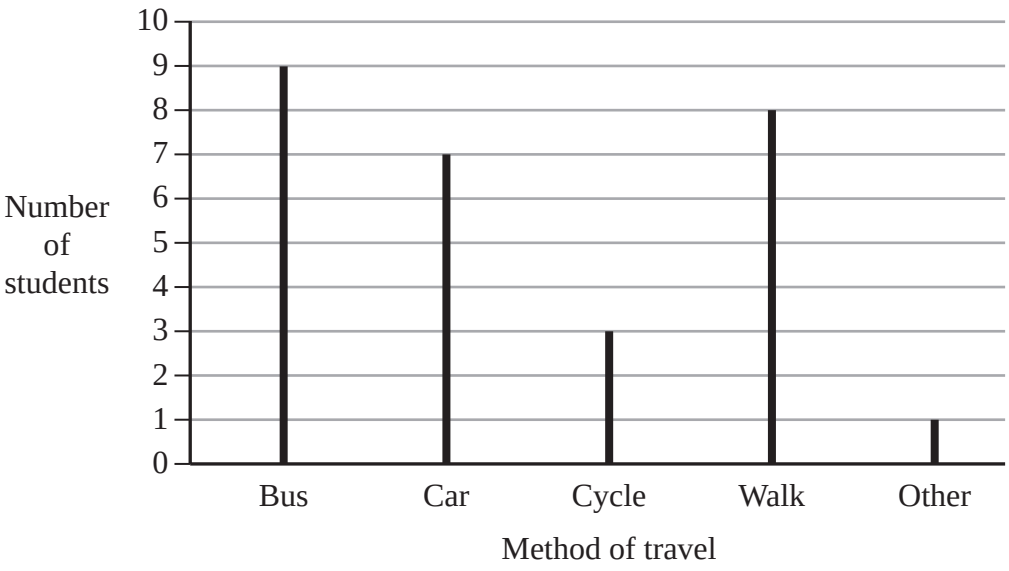
(b) Calculate an estimate for the mean weight of the 120 oranges.
Give your answer correct to 3 significant figures.

..... grams

(3)

(Total for Question 28 is 4 marks)

7 Julie asks some students how they travel to school.
The chart shows her results.



(a) Write down which method of travel is the mode.

.....

(1)

More students walk to school than cycle to school.

(b) How many more?

.....

(1)

(Total for Question 7 is 2 marks)

7 Here are the ages, in years, of 8 children.

14 10 10 13 15 9 15 10

(a) Work out the mean age.

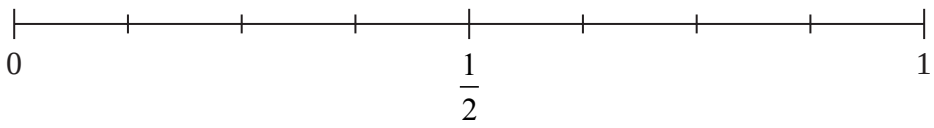
..... years
(2)

(b) Work out the range of the ages.

..... years
(2)

One of the children is chosen at random.

(c) On the probability scale below, mark with a cross (×) the probability that this child has an age of 15



(1)

(Total for Question 7 is 5 marks)

15 The table gives information about the ages of the 41 children in Blackrod football club.

Age (years)	Frequency
8	6
9	7
10	15
11	11
12	2

(a) Work out the mean age.
Give your answer correct to 1 decimal place.

..... years
(3)

Rohan is working out the modal age of the children in Blackrod football club.
He says,

"The highest frequency is 15, so the modal age is 15"

(b) Is Rohan's answer correct?
Give a reason for your answer.

.....

.....

.....

(1)

(Total for Question 15 is 4 marks)

22 The stem and leaf diagram shows the test scores of 23 students from School **A**.

3	0
4	1 2 4 4 5 7
5	3 4 4 6 7 8 8 9
6	0 8 8 9 9
7	1 3 9

Key:
3 | 0 represents 30

23 students from School **B** did the same test.

Their median score was 56
The range of their scores was 47

Compare the distribution of the test scores of the students from School **A** with the distribution of the test scores of the students from School **B**.

(Total for Question 22 is 4 marks)

8 Here is a list of numbers.

7 14 6 6 8 5 6 10 11 14

(a) Find the mode.

.....

(1)

(b) Work out the range.

.....

(2)

(Total for Question 8 is 3 marks)

25 Here are two lists of numbers.

List **A**	276	400	157	139		
List **B**	530	500	270	x	440	320

mean of list **A** : mean of list **B** = 3 : 5

Work out the value of x.

x = ...

(Total for Question 25 is 5 marks)

19 Katya counted the number of people in each of 50 cars.

The table gives information about her results.

Number of people	Frequency
1	16
2	15
3	7
4	9
5	3

(a) Find the median number of people.

.....

(1)

(b) Work out the mean number of people.

.....

(3)

(Total for Question 19 is 4 marks)