Non-Calculator

Q1.

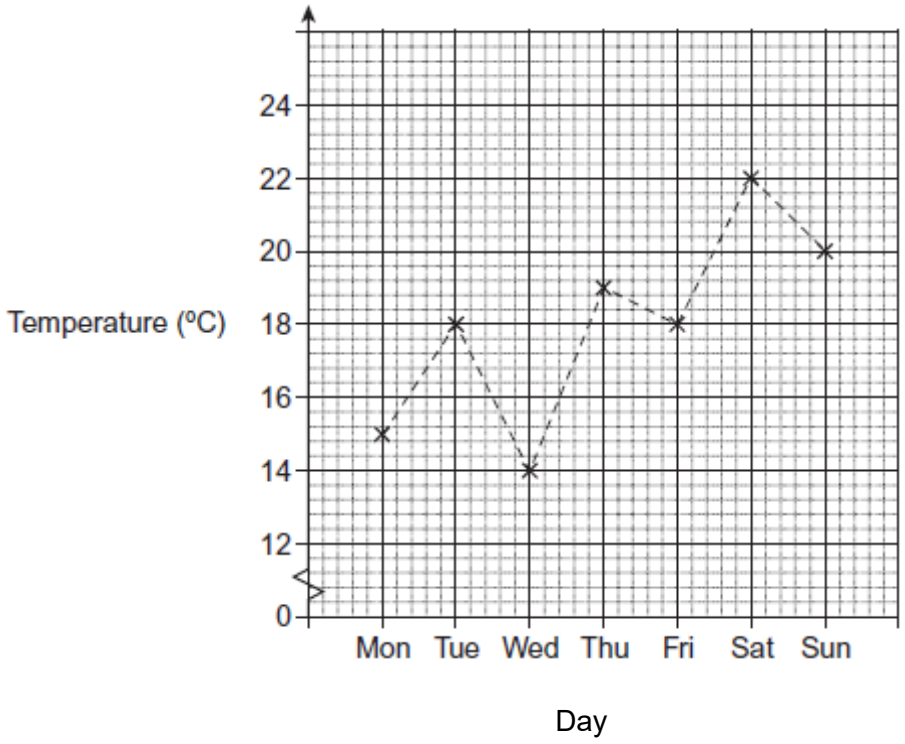
Circle the expression for the range of n consecutive integers.

$\frac{n+1}{2}$ $\quad$ $n-1$ $\quad$ n $\quad$ $n+1$

(Total 1 mark)

Q2.

The graph shows the midday temperatures in a seaside town for a week.



What is the range of the midday temperatures?

_____

_____

_____

Answer _____ °C

(Total 2 marks)

Q3.

In one month, the number of hours of exercise taken by 10 people are

4 7 2 8 6 5 1 82 3 9

Which is the appropriate average to use in this situation?

Tick a box.

Mean ☐ Median ☐ Mode ☐

Give one reason for each of the other two averages as to why they are **not** appropriate.

Reason 1 _____

_____

Reason 2 _____

_____

(Total 2 marks)

Q4.

Here are five numbers.

5 9 10 7 9

(a) What is the mode?

_____

Answer _____

(1)

(b) Show clearly that the median is 9.

_____

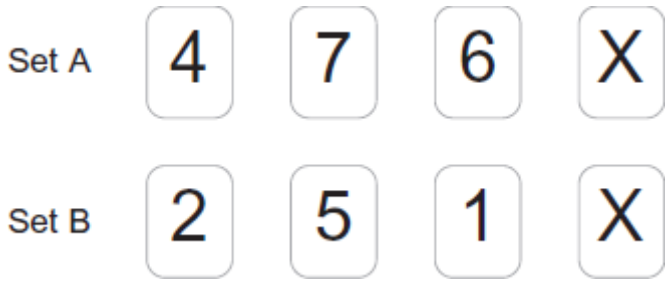
_____

(1)

(Total 2 marks)

Q5.

Here are two sets of cards.



X has the same value on both cards.
Each set of cards has a range of 4.

Work out the value of X.

Answer _____

(Total 2 marks)

Q6.

Fay is testing an ordinary six-sided dice to see if it is biased.

She throws the dice 120 times.

(a) Work out the number of times the dice is expected to land on 1

Answer _____

(1)

(b) Here are the actual results.

Number on dice	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
Frequency	5	19	17	20	21	38	120

Is the dice biased?
Tick a box.

Yes ☐ No ☐ Cannot tell ☐

(2)

(Total 3 marks)

Calculator

Q7.

Paula records the times she takes to run 30 marathons.

Time , t (minutes)	Frequency	Midpoint	
$200 < t \leq 240$	16		
$240 < t \leq 280$	4		
$280 < t \leq 320$	4		
$320 < t \leq 360$	0		
$360 < t \leq 400$	2		
$400 < t \leq 440$	0		
$440 < t \leq 480$	2		
$480 < t \leq 520$	2		

(a) Write down the modal class.

Answer _____ < t ≤ _____

(1)

(b) Use midpoints to calculate an estimate of the mean time Paula takes.

_____

_____

_____

_____

_____

Answer _____ minutes

(3)

(c) Paula runs each marathon in a faster time.

Which average better represents her current performance?
Tick a box.

Modal class ☐ Mean ☐

Explain your answer.

_____

_____

(1)

(Total 5 marks)

Q8.

The following data comes from a large sample survey of the audience at a concert.

	Percentage	**Mean age (years)**	**Age range (years)**
Male	17%	20.3	6
Female	83%	25.7	28

Make **three** comparisons of males and females at the concert.
Use the headings given.

Proportion of the audience _____

_____

_____

_____

Average age _____

_____

_____

_____

Spread of ages _____

_____

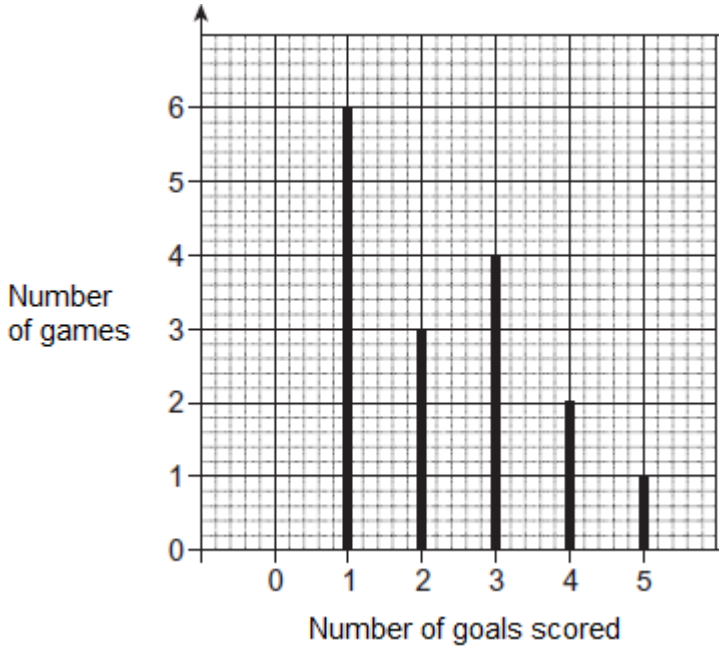
_____

_____

(Total 3 marks)

Q9.

The diagram shows the number of goals scored by a team in 16 games.



(a) In the next 4 games the team did **not** score.

Complete the diagram for all 20 games.

(1)

(b) Altogether, how many goals did the team score in the 20 games?

_____

_____

_____

Answer _____

(2)

(c) The team then played one extra game.
In the 21 games, they scored a mean of 2 goals per game.

How many goals did they score in the extra game?

_____

_____

Answer _____

(2)

(Total 5 marks)

Q10.

Mark went fishing on four Saturdays.

	Week 1	Week 2	Week 3	Week 4
Number of fish caught	4	1	6	3
Time fishing	2.5 hours	1.5 hours	5 hours	2.5 hours
Mean weight of fish caught	1.2 kg	2.3 kg	0.8 kg	1.9 kg

(a) Work out the **mean** number of fish caught **per hour** in **Week 1**.

Answer _____

(2)

(b) Mark says,

"One of the fish I caught weighed 5 kg."

In which week did this happen?
Give a reason for your answer.

Answer _____

(2)

(Total 4 marks)

Q11.

Class A had a spelling test of ten words.
The table shows their marks.

Class A

Mark	Frequency	
5	4	
6	2	
7	8	
8	10	
9	6	

(a) How many students are in Class A?

_____

Answer _____

(1)

(b) Write down the range of the marks.

_____

Answer _____

(1)

(c) Show that the mean mark is 7.4

_____

_____

_____

(3)

(d) Class B had the same test.

The range of marks for Class B is 6
The mean mark for Class B is 4.3

Compare the marks of Class A and Class B.

Comparison 1 _____

_____

_____

Comparison 2 _____

_____

_____

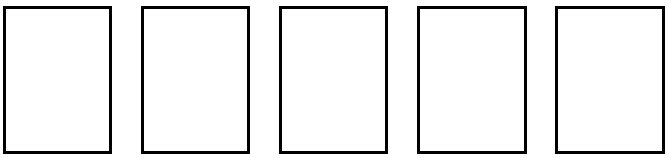
(2)

(Total 7 marks)

Q12.

Put the numbers 1, 2 or 3 on each card so that

- each number is used at least once
- the mode of the numbers is 2.



(Total 2 marks)

Q13.

Chris recorded the number of runs he scored in five cricket matches.

21 20 29 22 24

(a) Calculate the mean.
Give your answer to the nearest whole number.

Answer _____

(4)

(b) Calculate the range.

Answer _____

(1)

Tommy also recorded the number of runs he scored in the five matches.

(c) Tommy's mean was 30.

He says, "I scored more runs than Chris."

Use the data to comment on this statement.

(1)

(d) Tommy's range was 75.

Chris says, "I was more consistent than Tommy."

Use the data to comment on this statement.

(1)

(Total 7 marks)

Q14.

A grocer has 100 boxes of strawberries.

He weighs 10 of the boxes.

Which **three** words describe the data he collects?
Circle your answers.

continuous discrete sample primary secondary

(Total 2 marks)

Q15.

Danni and Ed are in the same quiz team.
In each round a person can score up to 10 points.

Here are the scores for Danni.

1 1 10 2 10 1 3

The scores for Ed have a range of 3.
The mean score for Ed is 5.

(a) Compare the scores for Danni and Ed.

(5)

(b) In the final round, only one person can play.
Their team needs 9 points to win.

Who would you choose, Danni or Ed?
Give a reason for your answer.

(1)

(Total 6 marks)

Q16.

Four numbers have a mean of 10
The median is 8

Two of the numbers are 1 and 5

Work out the other two numbers.

_____

_____

_____

_____

_____

_____

Answer _____ and _____

(Total 3 marks)

Q17.

Andrew is planning a survey about his local library.
Here is one of his questions with a response section.

How many times do you go to the library?

1	2	3	5 or more
☐	☐	☐	☐

(a) Give **one** criticism of the **question**.

_____

_____

(1)

(b) Give **two** criticisms of the **response** section.

Criticism 1 _____

_____

Criticism 2 _____

_____

(2)

(Total 3 marks)

Q18.

The speed of 50 vehicles was measured travelling along a road.

Speed, s (mph)	Number of cars
$0 < s \leq 40$	2
$40 < s \leq 60$	11
$60 < s \leq 75$	24
$75 < s \leq 90$	9
$90 < s$	4

(a) Every driver travelling at more than 70 mph is fined £60
On average, 8400 drivers use the road each day.

Estimate the total amount of money raised from fines on the road each day.

Answer £.....

(3)

(b) Mia says,

"4% of vehicles on the road travel at 40 mph or less."

Explain why she might be wrong.

(1)

(Total 4 marks)

Q19.

A company makes bags of toffees.

The company checks that the bags contain 50 toffees.

(a) The number of toffees in a sample of 11 bags is

51 50 51 51 52 43 50 50 51 51 50

(i) Write down the mode.

Answer _____

(1)

(ii) Work out the median.
You **must** show your working.

_____

_____

Answer _____

(2)

(iii) Work out the mean.

_____

_____

Answer _____

(3)

(b) The company claims there are 50 toffees in a bag.

(i) Give a reason why this claim seems fair.

_____

_____

(1)

(ii) Give a reason why this claim seems unfair.

_____

_____

(1)

(c) The company uses the first 11 bags produced each Monday to check the contents.

State **two** ways this method of sampling can be improved.

1. _____

_____

2. _____

_____

(2)

(Total 10 marks)