GCSE Grade 6

Maths Booklet 4

Paper 1H
Non-Calculator

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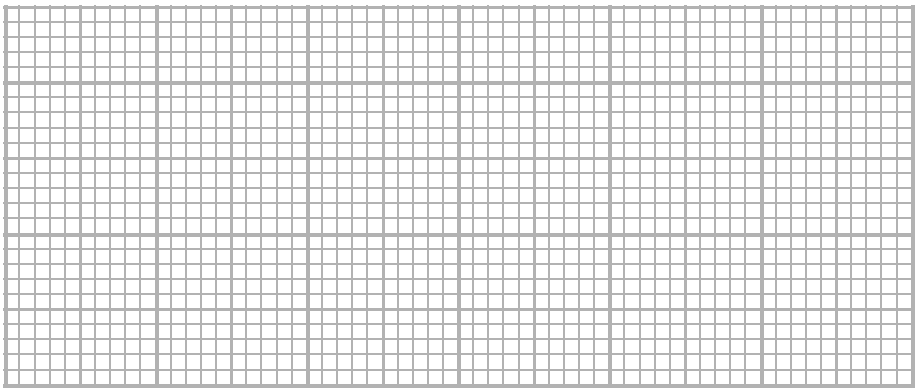
1 Ben played 15 games of basketball.
Here are the points he scored in each game.

17 18 18 18 19 20 20 22 23 23 23 26 27 28 28

(a) Draw a box plot for this information.



(3)

Sam plays in the same 15 games of basketball.

The median number of points Sam scored is 23
The interquartile range of these points is 12
The range of these points is 20

(b) Who is more consistent at scoring points, Sam or Ben?
You must give a reason for your answer.

.....

.....

.....

(2)

(Total for Question 1 is 5 marks)

2 The mass of Jupiter is 1.899×10^{27} kg.
The mass of Saturn is 0.3 times the mass of Jupiter.

(a) Work out an estimate for the mass of Saturn.
Give your answer in standard form.

..... kg
(3)

(b) Give evidence to show whether your answer to (a) is an underestimate or an overestimate.

.....

.....

(1)

(Total for Question 2 is 4 marks)

3 Walkden Reds is a basketball team.

At the end of 11 games, their mean score was 33 points per game.
At the end of 10 games, their mean score was 2 points higher.

Jordan says,

"Walkden Reds must have scored 13 points in their 11th game."

Is Jordan right?
You must show how you get your answer.

.....

(Total for Question 3 is 3 marks)

4 There are some red counters and some yellow counters in a bag.
There are 30 yellow counters in the bag.
The ratio of the number of red counters to the number of yellow counters is 1 : 6

(a) Work out the number of red counters in the bag.

.....

(2)

Riza puts some more red counters into the bag.
The ratio of the number of red counters to the number of yellow counters is now 1 : 2

(b) How many red counters does Riza put into the bag?

.....

(2)

(Total for Question 4 is 4 marks)

5 Write down the value of $125^{\frac{2}{3}}$

.....

(Total for Question 5 is 1 mark)

6 Sean drives from Manchester to Gretna Green.

He drives at an average speed of 50 mph for the first 3 hours of his journey.

He then has 150 miles to drive to get to Gretna Green.
Sean drives these 150 miles at an average speed of 30 mph.

Sean says,

"My average speed from Manchester to Gretna Green was 40 mph."

Is Sean right?
You must show how you get your answer.

(Total for Question 6 is 4 marks)

7 $m = \sqrt{\dfrac{k^3 + 1}{4}}$

Make k the subject of the formula.

.....

(Total for Question 7 is 3 marks)

8 A car travels for 18 minutes at an average speed of 72 km/h.

(a) How far will the car travel in these 18 minutes?

..... km

(2)

David says,

"72 kilometres per hour is faster than 20 metres per second."

(b) Is David correct?
You must show how you get your answer.

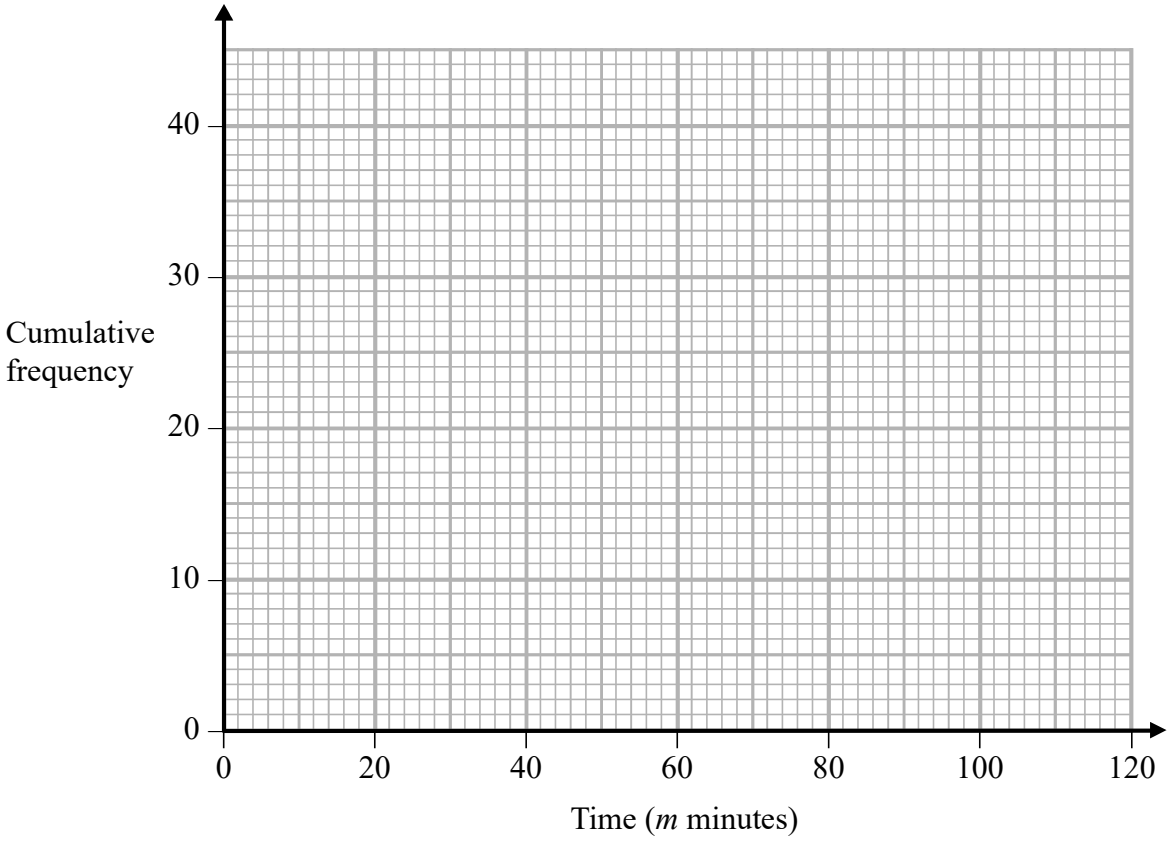
(2)

(Total for Question 8 is 4 marks)

9 The cumulative frequency table shows information about the times, in minutes, taken by 40 people to complete a puzzle.

Time (m minutes)	Cumulative frequency
$20 < m \leqslant 40$	5
$20 < m \leqslant 60$	25
$20 < m \leqslant 80$	35
$20 < m \leqslant 100$	38
$20 < m \leqslant 120$	40

(a) On the grid below, draw a cumulative frequency graph for this information.



(2)

(b) Use your graph to find an estimate for the interquartile range.

..... minutes

(2)

One of the 40 people is chosen at random.

(c) Use your graph to find an estimate for the probability that this person took between 50 minutes and 90 minutes to complete the puzzle.

.....

(2)

(Total for Question 9 is 6 marks)