Mock Grade 6

Maths Booklet 4

Paper 1H
Non-Calculator

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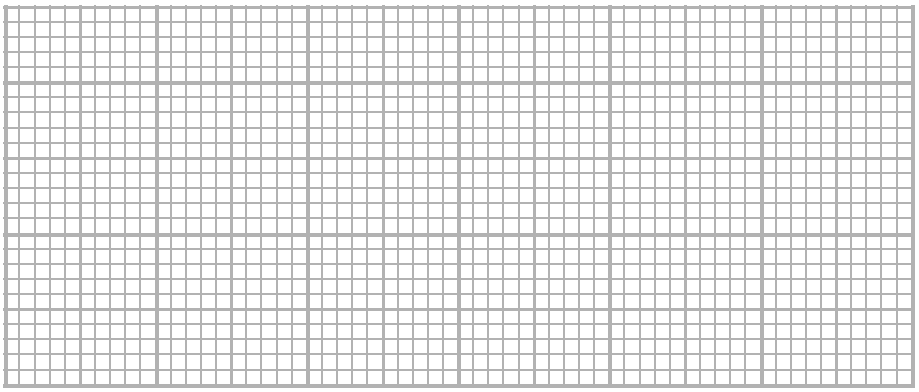
1 Ben played 15 games of basketball.
Here are the points he scored in each game.

15 16 16 17 19 21 22 22 24 25 27 30 31 32 35

(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 25
The interquartile range of these points is 9
The range of these points is 18

(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 distance between Earth and Mars is 382.84 million kilometres.
The speed of light is 2.998×10^5 km/s.

a) Find an estimate for the time, in seconds, it takes for light to travel from Earth to Mars. Give your answer in standard form

..... s

(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 16 games, their mean score was 25 points per game.
At the end of 15 games, their mean score was 1 point lower

ordan says,

"Walkden Reds must have scored 30 points in their 16th 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 18 yellow counters in the bag.
The ratio of the number of red counters to the number of yellow counters is 5 : 2

(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 3 : 1

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

.....

(2)

(Total for Question 4 is 4 marks)

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5 Write down the value of $64^{\frac{2}{3}}$

.....

(Total for Question 5 is 1 mark)

6 Sean drives from Manchester to Gretna Green.

He drives at an average speed of 45 mph for the first 4 hours of his journey.

He then has 120 miles to drive to get to Gretna Green.
Sean drives these 120 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)

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7 Make y the subject of the formula $p = \sqrt{\frac{x+y}{5}}$

.....

(Total for Question 7 is 3 marks)

8 A car travels for 24 minutes at an average speed of 45 km/h.

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

..... km

(2)

David says,

"45 kilometres per hour is faster than 10 metres per second."

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

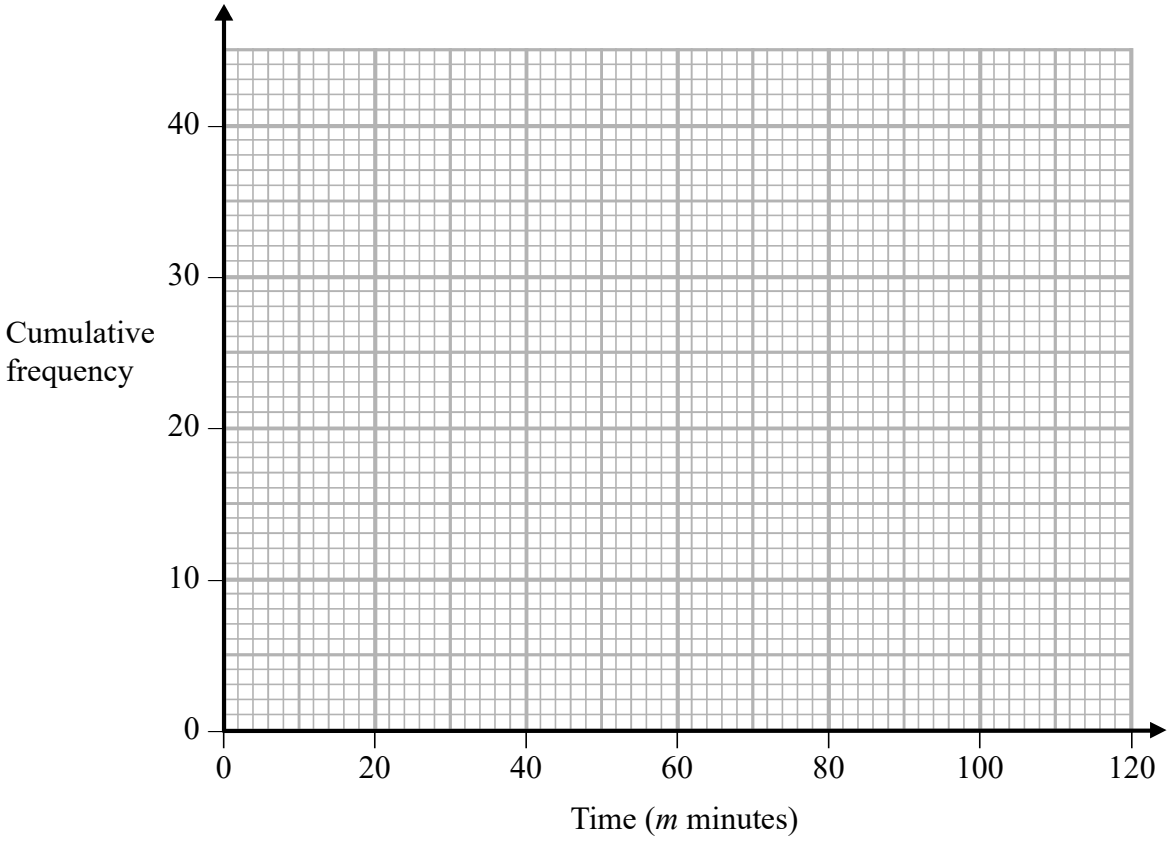
(2)

(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
$20 < m \leqslant 40$	3
$20 < m \leqslant 60$	16
$20 < m \leqslant 80$	29
$20 < m \leqslant 100$	34
$20 < m \leqslant 120$	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 30 minutes and 70 minutes to complete the puzzle.

.....

(2)

(Total for Question 9 is 6 marks)