

Estimating the Mean

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You **can** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

- 1 Anna records the speed of cars going past on a busy road.

| Speed s (mph) | Frequency |
|------------------|-----------|
| $0 < s \leq 30$ | 4 |
| $30 < s \leq 40$ | 28 |
| $40 < s \leq 50$ | 37 |
| $50 < s \leq 60$ | 10 |
| $60 < s \leq 70$ | 6 |

Use this table to estimate the average speed of the cars.

Give your answer to 2 significant figures.

[3 marks]

Answer _____ mph

Turn over for next question

- 2 Eric's favourite bag of sweets says there are approximately 55 sweets in each bag. Eric does an experiment to see if this is true.

| Number of sweets s | Frequency |
|----------------------|-----------|
| $40 < t \leq 45$ | 12 |
| $45 < t \leq 50$ | 18 |
| $50 < t \leq 55$ | 23 |
| $55 < t \leq 60$ | 2 |

Use this table to estimate the average number of sweets in each bag.

Give your answer to 2 significant figures.

[3 marks]

Answer _____ sweets



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3 A class of students all run 5 km.

Their teacher records the time it takes them to finish.

| Time t (minutes) | Frequency |
|--------------------|-----------|
| $0 < t \leq 30$ | 15 |
| $30 < t \leq 35$ | 16 |
| $35 < t \leq 40$ | 40 |
| $40 < t \leq 50$ | 23 |

Use this table to estimate the average time it took for students to finish the run.

Give your answer to 2 significant figures.

[3 marks]

Answer _____ minutes



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Turn over ►

- 4 Siobhan measures the temperature of different spots in the river.

| Temperature t ($^{\circ}\text{C}$) | Frequency |
|--|-----------|
| $0 < t \leq 5$ | 2 |
| $5 < t \leq 10$ | 5 |
| $10 < t \leq 15$ | 8 |

Use this table to estimate the average temperature of the river.

[3 marks]

Answer _____ $^{\circ}\text{C}$

Turn over for next question

- 5 The following table displays the heights of children in Kevin's class.

| Height h (m) | Frequency |
|--------------------|-----------|
| $1.5 < h \leq 1.6$ | 12 |
| $1.6 < h \leq 1.7$ | 27 |
| $1.7 < h \leq 1.8$ | 8 |
| $1.8 < h \leq 1.9$ | 1 |

- 5(a) Use this table to estimate the average height of the students in Kevin's class.
Give your answer to 1 decimal place.

[3 marks]

Answer _____ m

- 5(b) Why is your answer to part (a) considered an estimate.

[2 marks]

Turn over for next question

Turn over ►

- 6** Hannah wants to know the average diameter of cookies from her local bakery.
She measures 50 cookies.

| Diameter d (cm) | Frequency |
|----------------------|-----------|
| $10.0 < h \leq 10.5$ | 17 |
| $10.5 < h \leq 11.0$ | 24 |
| $11.0 < h \leq 11.5$ | 3 |
| $11.5 < h \leq 12.0$ | 6 |

- 6(a)** What is the modal class?

[1 mark]

Answer _____

- 6(b)** Estimate the average diameter of the cookies.
Give your answer to 1 decimal place.

[3 marks]

Answer _____ cm

End of Questions