E3 *Measures of Central Tendency* Data Sheets

Data Sheets

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Data Sheet E3.1

Mean, Median and Mode 1

DATA Several students were asked to estimate the height of a tin of baked beans. Their estimates were:

8, 9, 7, 11, 10, 9, 9, 8, 10 cm

MEAN $\dfrac{\text{Sum of heights}}{\text{Total number of values}} = \dfrac{\square}{\square}$

Mean = $\square$

MEDIAN Heights in ascending order are:

$\square$

The median is the middle value, so

Median = $\square$

MODE This is the height with the highest frequency, so

Mode = $\square$

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Data Sheet E3.2

Mean, Median and Mode 2

DATA In a survey of 10 households, the number of children per household was

4, 1, 5, 4, 3, 7, 2, 3, 4, 1

(a) Mode = ☐

(b) (i) Calculate the MEAN number of children per household.

Mean =

$$\left(\frac{\square + \square + \square + \square + \square + \square + \square + \square + \square + \square}{10}\right)$$

$$= \frac{\square}{10}$$

$$= \square$$

(ii) Calculate the MEDIAN number of children per household.

Data in order is = ☐

Median = middle value = $\frac{\square + \square}{2}$ = ☐

(c) Why is the MODE the best average to represent this data?

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Data Sheet E3.3

Mean, Median and Mode 3

DATA In a survey of 10 households, the number of children per household was

4, 1, 5, 4, 3, 7, 2, 3, 4, 1

For a household chosen at random from those in the survey, calculate the probability of

(a) exactly 4 children:

$$p(\text{4 children}) = \frac{\square}{10}$$

$$= \square$$

(b) more than 4 children:

$$p(\text{more than 4 children}) = \frac{\square}{10}$$

$$= \square$$

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Data Sheet E3.4 *Mean Value from Frequency Table*

A football team's record of goals scored is given in the table.

Find the mean number of goals scored per match.

No. of goals (x)	*Frequency (f)*	*No. of goals* × *Frequency* (fx)
0	8	
1	10	
2	12	
3	3	
4	5	
5	2	
6	0	
TOTALS		

Total matches $(\sum f)$ *Total goals* $(\sum fx)$

$$\textit{Mean}\ (\bar{x}) = \frac{\text{Total goals } (\sum fx)}{\text{Total number of matches } (\sum f)} = \frac{\square}{\square}$$

$$= \square$$

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Data Sheet E3.5

Frequency Table

The marks obtained by 25 pupils on a test are shown opposite.

3	4	5	6	5
5	1	2	3	3
4	7	5	1	5
2	5	6	5	4
6	4	5	4	3

(a) Complete the frequency table.

Marks	*Frequency*
1	
2	
3	
4	
5	
6	
7	
Total	

(b) For this data, the

(i) modal mark = ☐ (ii) median mark = ☐

(iii) range = ☐

(c) A pupil is chosen at random. What is the probability that the pupil's mark is greater than 5 ?

$$p(\text{mark greater than } 5) = \frac{\square + \square}{25} = \frac{\square}{25} = \square$$

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Data Sheet E3.6 *Calculations with the Mean*

Rohan's mean score in three cricket matches was 55 runs.

(a) How many runs did he score altogether?

$$\text{Mean} = 55 = \frac{\text{total scored}}{3}$$

$$\text{Total scored} = 55 \times 3$$

$$= \square$$

After four matches his mean score was 61 runs.

(b) How many runs did he score in the fourth match?

$$\text{Total scored in four matches} = 4 \times 61$$

$$= \square$$

$$\text{Fourth match score} = \square - \square$$

$$= \square$$

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Data Sheet E3.7 *Estimation of the Mean*

The table below shows the distribution of scores of 40 students on a Mathematics test.

Score	10 - 12	13 - 15	16 - 18	19 - 21	22 - 24
Frequency	4	6	13	9	8

(a) Estimate the mean score obtained.

Score Range	*Midpoint*	*Frequency*	*Midpoint* × *Frequency*
10 - 12	11	4	11 × 4 = ☐
13 - 15	☐	6	☐ × 6 = ☐
16 - 18	☐	13	☐ × 13 = ☐
19 - 21	☐	9	☐ × 9 = ☐
22 - 24	☐	8	☐ × 8 = ☐

$$\text{Mean} = \frac{(\square + \square + \square + \square + \square)}{40} = \frac{\square}{40} = \square$$

(b) Estimate the probability that a student selected at random scores at most 15 marks.

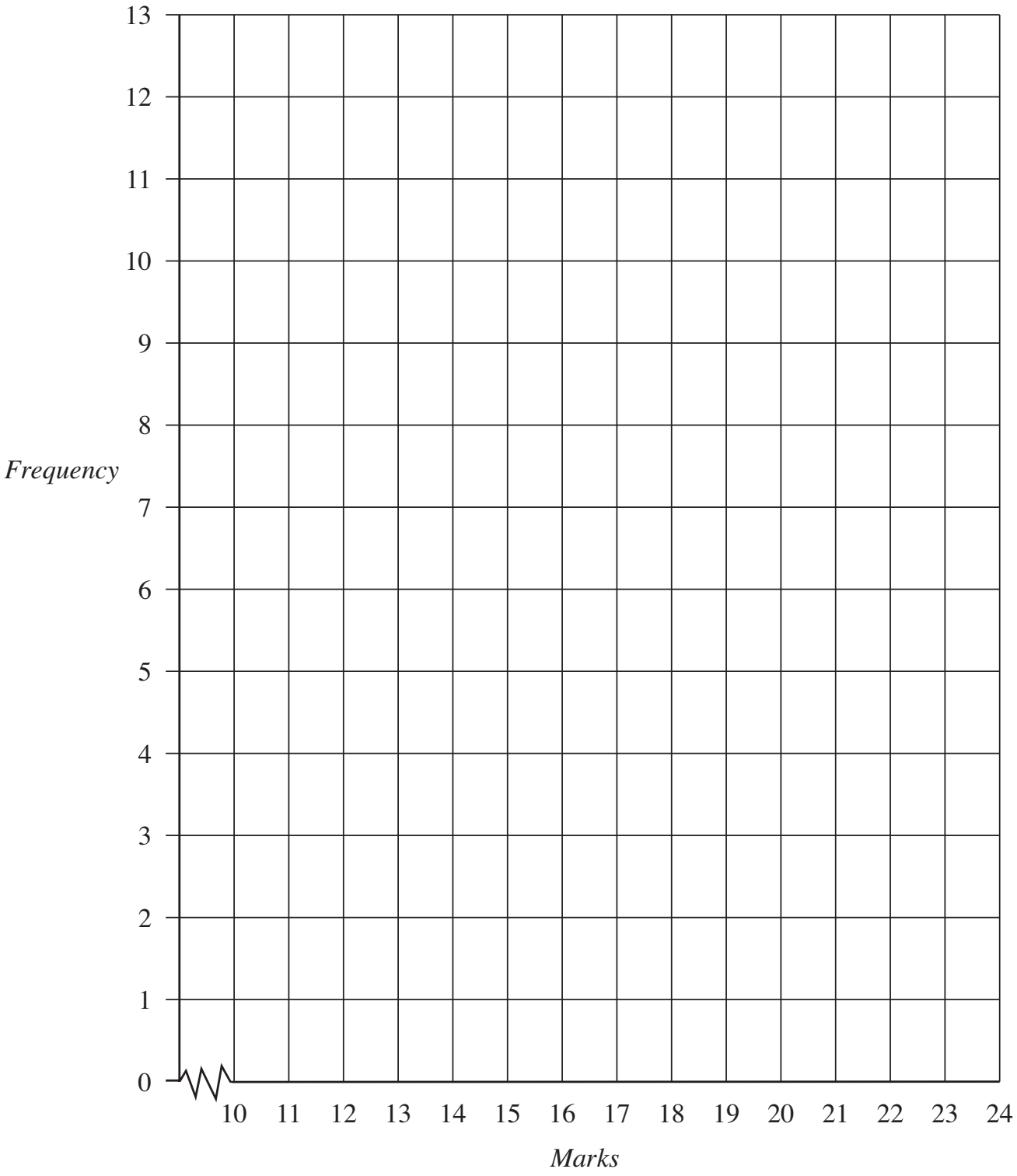
$$\text{Probability} = \frac{\square + \square}{40} = \frac{\square}{40} = \square$$

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Data Sheet E3.8

Frequency Polygon

Draw a frequency polygon to represent the data from Data Sheet E3.7.



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