ESTIMATING THE MEAN FOR GROUPED DATA

TRANSCRIPT

Calculating the mean for a simple data set:

5, 7, 8, 8, 3, 1, 2, 8, 5, 2

$$\text{Mean} = \frac{5+7+8+8+3+1+2+8+5+2}{10}$$

$$\text{Mean} = \frac{49}{10} = 4.9$$

Calculating the mean for a tabulated data set:

5, 7, 8, 8, 3, 1, 2, 8, 5, 2

Data	Frequency	Freq x Data
1	1	1
2	2	4
3	1	3
5	2	10
7	1	7
8	3	24
Totals	10	49

$$\text{Mean} = \frac{49}{10} = 4.9$$

ESTIMATING THE MEAN FOR GROUPED DATA — TRANSCRIPT

Estimating the mean for grouped data:

Ex 1

Data Group	Frequency	Midpoint	Freq x Midpt
$0 < x \leq 10$	8	5	40
$10 < x \leq 20$	10	15	150
$20 < x \leq 30$	16	25	400
$30 < x \leq 40$	4	35	140
$40 < x \leq 50$	2	45	90
Totals	40		820

Estimate of Mean $= \frac{820}{40} = 20.5$

ESTIMATE OF MEAN FOR GROUPED DATA — TRANSCRIPT

Ex2 The table shows information about the number of hours that 120 children used a computer last week.

Number of hours (h)	Frequency	Midpoint	Freq x Midpt
$0 < h \leq 2$	10	1	10
$2 < h \leq 4$	15	3	45
$4 < h \leq 6$	30	5	150
$6 < h \leq 8$	35	7	245
$8 < h \leq 10$	25	9	225
$10 < h \leq 12$	5	11	55
Totals	120		730

Work out an estimate for the mean number of hours that the children used a computer. Give your answer to 2 decimal places.

$$\text{Estimate of Mean} = \frac{730}{120} = 6.08 \text{ hours}$$

to 2 d.p.

ESTIMATING THE MEAN FOR GROUPED DATA — TRANSCRIPT

Ex3 Fred did a survey on the areas of pictures in a newspaper. The table gives information about the areas.

Area (A cm^2)	Frequency	Midpoint	Freq × Midpt
$0 < A \leq 10$	38	5	190
$10 < A \leq 25$	36	17.5	630
$25 < A \leq 40$	30	32.5	975
$40 < A \leq 60$	46	50	2300
Totals	150		4095

Work out an estimate for the mean area of a picture.

In this question we need to take extra care working out the midpoints. They are calculated by taking an average of the upper and lower bounds for each group.

$\frac{0+10}{2} = 5$, $\frac{10+25}{2} = \frac{35}{2} = 17.5$

$\frac{25+40}{2} = \frac{65}{2} = 32.5$, $\frac{40+60}{2} = \frac{100}{2} = 50$

$$\text{Estimate of Mean} = \frac{4095}{150} = 27.3 \text{ cm}^2$$