

## **Mean from grouped frequency tables**

To be able to work out mean from grouped frequency table

Activate

## Grouped Frequency Tables



Time taken	Frequency	Mid point	Total (Frequency x mid point)
$0 < t \leq 5$	5		
$5 < t \leq 10$	14		
$10 < t \leq 15$	10		
$15 < t \leq 20$	1		
			Total:

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} =$$

Activate

## Grouped Frequency Tables



Time taken	Frequency	Mid point	Total (Frequency x mid point)
$0 < t \leq 5$	5	$\times 2.5 =$	12.5
$5 < t \leq 10$	14	$\times 7.5 =$	105
$10 < t \leq 15$	10	$\times 12.5 =$	125
$15 < t \leq 20$	1	$\times 15.5 =$	15.5
	<u>30</u>		Total: <u>258</u>

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} = \frac{258}{30} = \underline{\underline{8.6}}$$

Demonstrate

## Mean from Grouped Frequency Table

- 1) Calculate an estimate for the mean height of a corn crop by completing the table below.

Height (in cm)	Frequency	Mid - point	Total (Mid - point $\times$ frequency =)
$20 \leq h < 40$	2	30	$30 \times 2 =$
$40 \leq h < 60$	3	50	$50 \times 3 =$
$60 \leq h < 80$	8		
$80 \leq h < 100$	6		
$100 \leq h < 120$	1		
			Total:

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} =$$

## Demonstrate

2) Calculate an estimate for the mean waiting time for patients in a casualty department by completing the table below.

Time (in minutes)	Frequency	Mid - point	Total (Mid - point $\times$ frequency)
$0 \leq t < 10$	1	5	$5 \times 1 =$
$10 \leq t < 20$	12	15	$15 \times 12 =$
$20 \leq t < 30$	24		
$30 \leq t < 40$	15		
$40 \leq t < 50$	13		
$50 \leq t < 60$	9		
$60 \leq t < 70$	5		
			Total:

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} =$$

Demonstrate

3) Calculate an estimate for the mean weight of packets of cheese by completing the table below.

Mass (in grams)	Frequency	Mid - point	Total (Mid - point $\times$ frequency)
$100 \leq m < 200$	4	150	$150 \times 4 =$
$200 \leq m < 300$	36	250	$250 \times 3 =$
$300 \leq m < 400$	47		
$400 \leq m < 500$	21		
$500 \leq m < 600$	12		
			Total:

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} =$$

## Demonstrate

4) Calculate an estimate for the mean handspan of a group of students by completing the table below.

Handspan (in cm)	Frequency	Mid - point	Calculation = Mid - point $\times$ frequency
$16 \leq h < 17$	3	16.5	$16.5 \times 3 =$
$17 \leq h < 18$	4	17.5	$17.5 \times 4 =$
$18 \leq h < 19$	7		
$19 \leq h < 20$	9		
$20 \leq h < 21$	4		
$21 \leq h < 22$	2		
$22 \leq h < 23$	1		
			Total:

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} =$$

Demonstrate

## Mean from Grouped Frequency Table

- 1) Calculate an estimate for the mean height of a corn crop by completing the table below.

ANSWER

Height (in cm)	Frequency	Mid - point	Total (Mid - point $\times$ frequency =)
$20 \leq h < 40$	2	30	$30 \times 2 = 60$
$40 \leq h < 60$	3	50	$50 \times 3 = 150$
$60 \leq h < 80$	8	70	560
$80 \leq h < 100$	6	90	720
$100 \leq h < 120$	1	110	110
	<u>20</u>		Total: <u>1600</u>

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} = \frac{1600}{20} = 80$$



Demonstrate

2) Calculate an estimate for the mean waiting time for patients in a casualty department by completing the table below.

ANSWER

Time (in minutes)	Frequency	Mid - point	Total (Mid - point $\times$ frequency)
$0 \leq t < 10$	1	5	$5 \times 1 = 5$
$10 \leq t < 20$	12	15	$15 \times 12 = 180$
$20 \leq t < 30$	24	25	$= 600$
$30 \leq t < 40$	15	35	$= 525$
$40 \leq t < 50$	13	45	$= 585$
$50 \leq t < 60$	9	55	$= 495$
$60 \leq t < 70$	5	65	$= 325$
	<u>79</u>		Total: <u>2715</u>

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} = \frac{2715}{79} = \underline{\underline{34.37}}$$

Demonstrate

3) Calculate an estimate for the mean weight of packets of cheese by completing the table below.

ANSWER

Mass (in grams)	Frequency	Mid - point	Total (Mid - point $\times$ frequency)
$100 \leq m < 200$	4	150	$150 \times 4 = 600$
$200 \leq m < 300$	36	250	$250 \times 3 = 750$
$300 \leq m < 400$	47	350	$16450$
$400 \leq m < 500$	21	450	$9450$
$500 \leq m < 600$	12	550	$6600$
	<u>120</u>		Total: <u>33850</u>

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} = \frac{33850}{120} = \underline{\underline{282.08}}$$

Demonstrate

4) Calculate an estimate for the mean handspan of a group of students by completing the table below.

ANSWER

Handspan (in cm)	Frequency	Mid - point	Calculation = Mid - point $\times$ frequency
$16 \leq h < 17$	3	16.5	$16.5 \times 3 = 49.5$
$17 \leq h < 18$	4	17.5	$17.5 \times 4 = 70$
$18 \leq h < 19$	7	18.5	$= 129.5$
$19 \leq h < 20$	9	19.5	$= 175.5$
$20 \leq h < 21$	4	20.5	$= 82$
$21 \leq h < 22$	2	21.5	$= 43$
$22 \leq h < 23$	1	22.5	$= 22.5$
	<u>30</u>		Total: <u>572</u>

$$\text{Mean} = \frac{\text{Total}}{\text{Total frequency}} = \frac{572}{30} = \underline{\underline{19.07}}$$