



Averages from Grouped Tables



← REVISE THIS TOPIC

1 The table shows information about the heights of 25 students.

Height, h (cm)	Frequency		
$130 < h \leq 140$	3	\times	135
$140 < h \leq 150$	15	\times	145
$150 < h \leq 160$	6	\times	155
$160 < h \leq 170$	1	\times	165
	<u>25</u>		<u>3675</u>

1 (a) Write down the modal class. [1 mark]

Answer 140 $< h \leq$ 150

1 (b) Work out an estimate for the mean height of the students. [3 marks]

3675 \div 25 = 147

Answer 147 cm



2 The table shows information about the masses of 400 apples.

Mass, m (grams)	Frequency			
62 $70 < m \leq 90$	62	x	80	4960
180 $90 < m \leq 110$	118	x	100	11800
374 $110 < m \leq 130$	194	x	120	23280
400 $130 < m \leq 150$	26	x	140	3640
	<u>400</u>			<u>43680</u>

2 (a) Write down the modal class. [1 mark]

Answer 110 $< m \leq$ 130

2 (b) Work out an estimate for the mean mass of the apples. [3 marks]

$$43680 \div 400 = 109.2$$

Answer 109.2 grams

2 (c) Which interval contains the median?
You **must** show your working. [2 marks]

$$400 + 1 = 401$$

$$401 \div 2 = 200.5^{\text{th}}$$

Answer 110 $< m \leq$ 130





3 The table shows information about the speeds of some cars on a road.

	Speed, s (mph)	Frequency		
1	$30 < s \leq 40$	1	\times 35	35
15	$40 < s \leq 50$	14	\times 45	630
52	$50 < s \leq 60$	37	\times 55	2035
100	$60 < s \leq 70$	48	\times 65	3120
		<u>100</u>		<u>5820</u>

3 (a) Write down the modal class. [1 mark]

Answer 60 $< s \leq$ 70

3 (b) Work out an estimate for the mean speed of the cars. [3 marks]

5820 ÷ 100

Answer 58.2 mph

3 (c) Which interval contains the median? You **must** show your working. [2 marks]

100 + 1 = 101

101 ÷ 2 = 50.5th

Answer 50 $< s \leq$ 60



4 The table shows information about the weekly pay of some workers.

Weekly Pay, (£ w)	Frequency		
$400 < w \leq 500$	12	\times 450	5400
$500 < w \leq 600$	11	\times 550	6050
$600 < w \leq 700$	6	\times 650	3900
$700 < w \leq 800$	5	\times 750	3750
$800 < w \leq 900$	1	\times 850	850
	<u>35</u>		<u>19950</u>

4 (a) Write down the modal class. [1 mark]

Answer 400 $< w \leq$ 500

4 (b) Work out an estimate for the mean weekly pay for the workers. [3 marks]

$$19950 \div 35$$

Answer £ 570

4 (c) Which interval contains the median?
You **must** show your working. [2 marks]

$$35 + 1 = 36$$

$$36 \div 2 = 18^{\text{th}}$$

Answer 500 $< w \leq$ 600



5 The table shows information about the race times of 50 runners.

Time, t (minutes)	Frequency			
$15 < t \leq 16$	6	x	15.5	93
$16 < t \leq 17$	10	x	16.5	165
$17 < t \leq 18$	10	x	17.5	175
$18 < t \leq 19$	21	x	18.5	388.5
$19 < t \leq 20$	3	x	19.5	58.5
	<u>50</u>			<u>880</u>

5 (a) Write down the modal class. [1 mark]

Answer 18 $< t \leq$ 19

5 (b) Work out an estimate for the mean race time of the runners. Give your answer in minutes and second. [4 marks]

$$880 \div 50 = 17.6$$
$$0.6 \times 60 = 36 \text{ seconds}$$

Answer 17 minutes 36 seconds

5 (c) Which interval contains the median? You **must** show your working. [2 marks]

$$50 + 1 = 51$$
$$51 \div 2 = 25.5^{\text{th}}$$

Answer 17 $< t \leq$ 18



6 The table shows information about the distances jumped by 11 athletes.

Distance, d (metres)	Frequency		
$4 < d \leq 4.5$	6	$\times 4.25$	25.5
$4.5 < d \leq 5$	1	$\times 4.75$	4.75
$5 < d \leq 5.5$	2	$\times 5.25$	10.5
$5.5 < d \leq 6$	2	$\times 5.75$	11.5
	<u>11</u>		<u>52.25</u>

6 (a) Write down the modal class. [1 mark]

Answer 4 $< d \leq$ 4.5

6 (b) Work out an estimate for the mean distance jumped.
Give your answer in centimetres. [3 marks]

$$52.25 \div 11 = 4.75$$

$$4.75 \times 100 = 475$$

Answer 475 cm

6 (c) Which interval contains the median?
You **must** show your working. [2 marks]

$$11 + 1 = 12$$

$$12 \div 2 = 6^{\text{th}}$$

Answer 4 $< d \leq$ 4.5



- 6 (d) Two more athletes jump and their distances are recorded.
Both athletes jump more than 4.5 metres.

The results for the two extra athletes are added to the table.

How will the two extra athletes affect your answers to parts (a), (b) and (c).
For each statement below tick one box. [3 marks]

	Remains the same	Changes	Not possible to tell
Part (a) The modal class	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Part (b) The estimate of the mean	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Part (c) The interval containing the median	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- 6 (e) Mo says: "The range of the jumps is 1.5 metres as $5.75 - 4.25 = 1.5$ "

Explain why Mo may not be correct. [1 mark]

We don't know the actual distances
Mo has just used the midpoints
but the max could be 5.8 and
min 4.1 for example.

