

Averages from Grouped Tables



REVISE THIS **TOPIC**

The table shows information about the heights of 25 students.

Frequenc	e y
3	×
15	X
6	×
1	X
	15

(a) Find the modal class.

(b) Work out an estimate for the mean height of the students.

(Total for Question 1 is 4 marks)





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

62
180
374
400

Mass, m (grams)	Frequency	,
$70 < m \le 90$	62	×
90 < <i>m</i> ≤ 110	118	X
$110 < m \le 130$	194	X
$130 < m \le 150$	26	×
	400	

(a) Find the modal class.

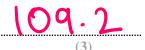
(b) Find the class interval that contains the median.

$$400+1=401$$

 $401\div 2=200\cdot 5^{th}$

110 < m ≤ 130

(c) Work out an estimate for the mean mass of the apples.



(Total for Question 2 is 5 marks)







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

	Speed, s (mph)	Frequency	
	$30 < s \le 40$	1 🗶	35 = 35
15	$40 < s \le 50$	14 🗶	45 = 630
52	$50 < s \le 60$	37 X	55 = 2035
100	$60 < s \le 70$	48 🗶	65 = 3120
		(00)	5820

(a) Find the modal class.

(b) Find the class interval that contains the median.

$$100+1=101$$

 $101\div 2=50.5$

(c) Work out an estimate for the mean speed of the cars.

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(Total for Question 3 is 5 marks)







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

	Weekly Pay, (£w)	Frequency	
12	$400 < w \le 500$	12 🗶	450 = 5400
23	$500 < w \le 600$	11 🔀	550=6050
29	$600 < w \le 700$	6 %	650 = 3900
34	$700 < w \le 800$	5 🔀	750=3750
35	$800 < w \le 900$	1 🗶	850 = 850
		35	19950

(a) Find the modal class.

(b) Find the class interval that contains the median.

$$35+1=36$$

 $36 \div 2 = 18$ th

5 00 < W < 600

(c) Work out an estimate for the mean weekly pay.



(Total for Question 4 is 5 marks)





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

	Time, t (minutes)	Frequency	
6	$15 < t \le 16$	6 X	15.5 = 93
16	$16 < t \le 17$	10 X	16.5 = 165
26	$17 < t \le 18$	10 🔀	17.5 = 175
47	$18 < t \le 19$	21 🗶	18.5 = 388.5
50	$19 < t \le 20$	3 🗶	19.5 = 58.5
		50	880

(a) Find the modal class.

(b) Find the class interval that contains the median.

$$50+1=51$$

 $51 \div 2 = 25 \cdot 5^{th}$

(c) Work out an estimate for the mean race time. Give your answer in minutes and seconds

$$880 \div 50 = 17.6$$

 $0.6 \times 60 = 36$ seconds



(Total for Question 5 is 6 marks)





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

	Distance, d (metres)	Frequenc	cy .	
6	4 < d ≤ 4.5	6	X	4.25 = 25.
7	$4.5 < d \le 5$	1	X	4.75 = 4.7
9	$5 < d \le 5.5$	2	X	5.25 = 10.5
[]	$5.5 < d \le 6$	2	X	5.75 = 11.
		11		<u>52.</u>

(a) Find the modal class.

(b) Find the class interval that contains the median.

$$11+1=12$$
 $12 \div 2 = 6^{th}$

(c) Work out an estimate for the mean distance jumped. Give your answer in centimetres.

$$52.25 \div 11 = 4.75$$

 $4.75 \times 100 = 475$



Solutions

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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.

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

	Remains the same	Changes	Not possible to tell
Part (a) The modal class			
Part (b) The estimate of the mean			
Part (c) The interval containing the median			

(3)

(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.

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. (Total for Question 6 is 9 marks)