

Median and mode from frequency tables

Starter

1. **(Review of last lesson)** The numbers 3, 5, 7, 8, N are arranged in ascending order. If the mean of the numbers is equal to the median, find N .

Working: Median = 7

Mean = 7:

$$\frac{3 + 5 + 7 + 8 + N}{5} = 7$$

Multiply both sides by 5 and simplify:
Subtract 23 from both sides:

$$\begin{aligned} 23 + N &= 35 \\ N &= 12 \end{aligned}$$

E.g. 1 Find the mode and median for the following data:

(a)

Number of people	1	2	3	4	5
Frequency	4	5	8	10	3

(b)

Number of goals	0	1	2	3	4	5
Frequency	1	3	4	5	3	2

Working

- (a) Mode = 4 people
 Sum of frequencies is 30
 $\frac{1}{2}(30 + 1) = 15.5$ – we need to find the 15.5th term (i.e. find the mean of the 15th and 16th term)

Number of people:	1	2	3	4	5
Frequency:	4	5	8	10	3
Running total:	4	9	17	27	30

Both the **15th and 16th terms** are in the category that has 8 as the frequency

Median = 3 people

- (b) Mode = 3 goals

Number of goals:	0	1	2	3	4	5
Frequency:	1	3	4	5	3	2

 The **2** that is left started out as a 5 in the 3 goal category
 Median = 3 goals

Video:

[Median from a frequency table](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook:	p471 M14.2 Qu 1-5
A*-G class textbook:	p425 M14.2 Qu 1-6
9-1 homework book:	p161 M14.2 Qu 1-4
A*-G homework book:	p118 M14.2 Qu 1-4