

# Averages and Grouped Data PPQs

1.

A hockey team took part in a tournament.  
A total of 25 players were used during the tournament.

A record was kept of the number of goals scored by each player.  
A summary of this record is shown below.

Number of goals scored	Number of players
0	7
1	8
2	4
3	5
4	1

(a) What was the mean number of goals scored per player? [3]

.....

.....

.....

.....

.....

(b) Explain clearly why a player, chosen at random, would be more likely to have scored the modal number of goals rather than the mean number of goals per player. [1]

.....

.....

.....

2.

Two groups of six people took part in a quiz.

(a) The six members of group A gained the following scores.

52      29      78      56      24      37

(i) Calculate the mean score per person. [3]

.....

.....

.....

.....

(ii) What was the range of the scores gained? [1]

.....

(b) The scores gained by the six members of group B are summarised below.

Score	Number of people
22	2
25	2
26	1
28	1

(i) Without doing any further calculations, state which group had the larger mean score per person. You must give a reason for your choice. [1]

.....

.....

(ii) Which group had the larger range of scores? You must give a reason for your choice. [1]

.....

.....

3.

1. The table below shows the shoe sizes of 20 people.

Shoe size	Number of people
38	3
39	9
40	5
41	3

Calculate the mean shoe size.

.....

.....

.....

.....

.....

.....

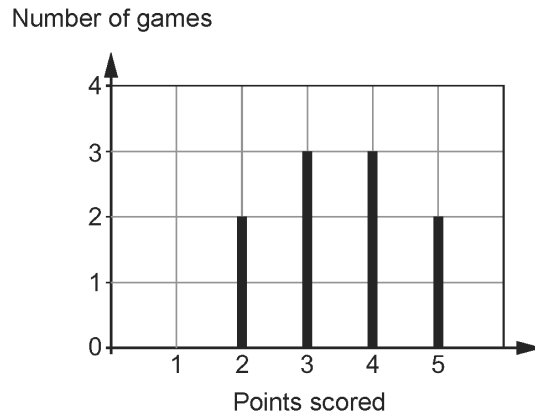
[3]

4.

Catrin and Samir each played a game ten times.  
In each game, between one and five points were scored.

Catrin had a mean score of 2.7 points for her ten games.  
The range of the number of points she scored on her games was 4.

Samir recorded his scores as shown on the grid below.



- (a) Who had the bigger mean score?  
You **must** give a reason for your answer. [1]

.....

.....

.....

- (b) Who had the bigger range of the number of points scored?  
You **must** give a reason for your answer. [1]

.....

.....

.....

5.

At a stall in a school fair, thirty-two people each paid £3 to choose a sealed envelope from a bag. Each envelope contained a shopping voucher.

The table below shows the number of each type of voucher in the bag.

Value of voucher	Number of vouchers
£1	15
£2	10
£5	5
£10	2

(a) The person in charge of the stall was asked,

“What was the average value of the vouchers?”

She replied,

“Are you asking for the mode, the median or the mean value?”

Show clearly that these three values are different.

[5]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(b) Did this stall make a profit or a loss?  
You must calculate the amount of this profit or loss.

[2]

.....

.....

.....

.....

.....

.....

.....

.....

.....

# Marking Scheme

1.

November 2015 UNIT 1 Foundation	Mark	FINAL MARK SCHEME Comments
13(a) (Mean $\Rightarrow$ ) $(7 \times 0) + 8 \times 1 + 4 \times 2 + 5 \times 3 + 1 \times 4$ (=35)	M1	M1 for a clear attempt at finding $\Sigma fx$ . Implied by an answer of 42 ( $7 \times 0 = 7$ used!)
‘their total’ $\div 25$ = 1.4	m1 A1	M1mo for $8 + 8 + 15 + 4 \div 25$ (= 31.16) C.A.O.
(b) A valid and relevant statement e.g. ‘The mean number of goals is not a whole number’ ‘The modal number is the most frequent’	E1	The modal value 1 need not be stated but if incorrectly stated (e.g. as 2 or 8) then E0.
	4	

2.

June 2015 UNIT 1 Foundation	✓	Mark	Comments
6(a)(i) $52 + 29 + 78 + 56 + 24 + 37$ (= 276)		M1	For an attempt to add the scores.
$276 \div 6$ = 46		m1 A1	Allow if one score ‘missed’. F.T. ‘their total’. C.A.O. Mark final answer.
6(a)(ii) (Range =) 54		B1	
6(b)(i) Group A AND Reference to higher scores in group A		B1	B0 if full calculation $(2 \times 22 + 2 \times 25 + 1 \times 26 + 1 \times 28) / 6$ is seen
6(b)(ii) Group A AND Reference to group B’s scores only between 22 and 28.		B1	Allow ‘Group A, they are more spread out’. Accept ‘B’s range is (only) 6

3.

1. $38 \times 3 + 39 \times 9 + 40 \times 5 + 41 \times 3$ (= 788) Their $\Sigma fx / 20$ 39.4 (ISW)	M1 m1 A1	CAO Must be from a correct method. Need to check method to watch for incorrect $\neq 4$
--	----------------	---

4.

12.(a) Samir AND a valid reason given.	B1	e.g. ‘Most of his points were 3 or over’, ‘Samir had a mean of 3.5’. B0 if an incorrect mean given for Samir.
(b) Catrin AND a valid reason given.	B1	e.g. ‘Samir’s range was (only) 3’ also allow ‘Samir’s range was 2 to 5 (or 5 to 2)’. B0 if an incorrect range given for Samir.
	2	

5.

9.(a)  Mode value given as (£)1. Median value given as (£)2. (Mean $\Rightarrow$ ) $15 \times (£)1 + 10 \times (£)2 + 5 \times (£)5 + 2 \times (£)10$ <div style="text-align: right;"><math>\div 32</math> = (£)2.5(0)</div>	B1 B1 M1 m1 A1	For each B mark, do not award if an incorrect reason is clearly shown. Must be unambiguously shown as the mode value. Must be unambiguously shown as the median value. M1 for a clear attempt at finding $\Sigma fx$ . C.A.O.
(b) $32 \times (£)3 - 32 \times (£)2.5(0)$ or equivalent. = £16 AND ‘Profit’	M1 A1	F.T. ‘their mean’.  Also M1 for $32 \times (£)3 -$ ‘their $\Sigma fx$ ’ OR $15 \times (£)2 + 10 \times (£)1 - 5 \times (£)2 - 2 \times (£)7$ (= (£)30 + 10 - 10 - 14 = (£)16) SC1 for sight of 96 and 80.
	7	



