Averages & Range PPQs

1. The ages, in years, of 8 members of a fitness club were:

55 37 34 42 46 29 31 62

(a) Find the median of their ages. [2]

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(b) Find the range of their ages. [1]

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(c) Find the mean of their ages. [3]

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(d) Assuming that the membership has not changed in the last four years, what were the mean and range of their ages four years ago? [2]

mean = ... range = ...

2.

The ages (in years) of the 8 members of an evening class are as follows:

36 28 45 24 31 34 27 47

(a) (i) Find the range of the ages of the members of the class. [1]

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(ii) What was the range of their ages one year ago?
Give a reason for your answer. [2]

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(b) Find the mean age of the members of the class. [3]

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3.

(b) Paige's revision homework is always marked out of 10.
Her last 3 marks for her homework have a median of 7, a range of 4 and a mode of 7.
Complete the boxes below to show the last 3 marks that Paige had for her revision homework. [3]

Working: .....

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4.

A newsagent sold the following numbers of copies of *The Evening Post* on each evening from Monday to Saturday.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
50	30	49	54	57	54

(a) Find the mean, median, mode and range for the number of copies of *The Evening Post* sold per day by the newsagent. [7]

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Mean	Median	Mode	Range

(b) The newsagent says:

"The mean is the best average to use for the number of copies of *The Evening Post* sold per day over the 6 days!"

Do you agree with the newsagent?
Give a reason for your answer. [1]

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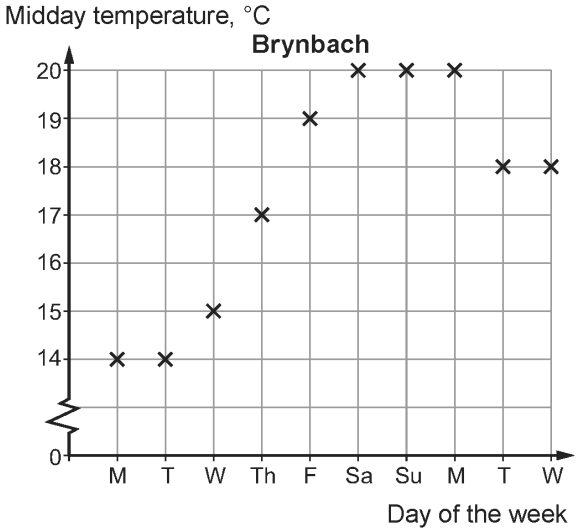
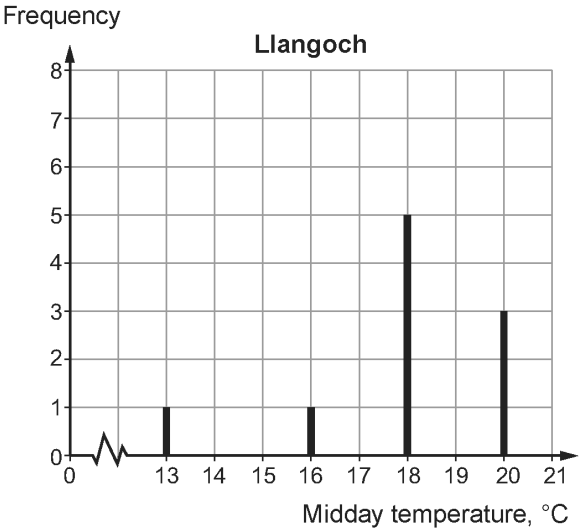
8

5. The midday temperature, measured to the nearest degree Celsius, was recorded for the same 10-day period in two villages.
The data, displayed in different ways, is shown below.





Show that Llangoch had the higher mean midday temperature over these 10 days. [5]

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6. In a game, it is possible for **each** player to score between 1 and 10 points.
Lois and Beca play the game five times.

The table below shows the points scored by Lois in each game.

	Game 1	Game 2	Game 3	Game 4	Game 5
Lois	5	2	8	5	1
Beca					

Beca had a higher mean score than Lois.
Beca had a lower median score than Lois.
Beca had a lower range of scores than Lois.

Complete the table above with a set of possible scores gained by Beca. [3]

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Marking Scheme

1.

All parts (a) to (d) marked together (a) 29 31 34 37 42 46 55 62 Median = 39.5 (years)	M1 A1	For identifying the correct TWO middle numbers OR for arranging the 8 numbers in ascending or descending order. C.A.O. Unsupported 39.5 gets M1, A1.
(b) 33 (years)	B1	
(c) Sum of the amounts (336) Sum/8 42 (years)	M1 **m1** A1	For adding numbers that would give a total in the range 270 – 400 For dividing **their sum** in the range 270 – 400 by 8. C.A.O.
(d) (Mean was) 38 (years) (Range was the same) 33 (years)	B1 B1	F.T. 'their mean' from part (c)' – 4. F.T. 'their range' from part (b)'

2.

Parts (a) & (b) marked at the same time 10. (a) (i) 23 (years)	B1	Comes from 47 – 24	Notes In part (a)(ii) accept For example, 23 because everyone would be 1 year younger OR 23 because the difference in their ages hasn't changed
(a) (ii) 23 (years) The 24 becomes 23 and the 47 becomes 46 O R Both ends are 1 less	B1 E1	F.T. 'their (a)(i)' 46 –23 = 23 gets the B1 and E1 B1, E1 for a list of the ages (each 1 less) and correct answer **E0 for 'they are the same people'**	
(b) Sum of the numbers (272) Sum/8 = 34 (years)	M1 M1 A1	For attempt to add the numbers For dividing a number in the range 220 – 320 inclusive by 8. C.A.O.	

3.

Applications Unit 1 Foundation June 2015	**Mark**	**Comment**
(b) 3, 7, 7 (in any order)	B3 3	Award B1 for a median of 7 B1 for a mode of 7 B1 for a range of 4 Penalise -1 for use of values >10 or for use of negative values.

4.

(a) Mean:		
Adding numbers (= 294)	M1	Attempt to add all the numbers.
294 ÷ 6	m1	FT 'their 294' ÷ 6 OR unsupported value in the range "237 to 351" ÷ 6
Mean = 49	A1	CAO
Median :		
Put in order 30, 49, 50, 54, 54, 57	M1	Sight of 50 and 54 only would gain M1
Median = 52	A1	
Mode = 54	B1	
Range = 27	B1	
(b) Reasonable explanation given	E1	FT "their values". eg 'No because the mean uses the value of 30 which is not consistent with the other values.' "Yes because it uses all the data."
	8	

5.

(Brynbach) Sum of the temperatures ÷ 10	M1	For dividing a number in the range 155 to 195 by 10
= 17·5 ISW	A1	CAO
(Llangoch) 13 + 16 + (18 × 5) + (20 × 3) (= 179)	M1	
[13 + 16 + (18 × 5) + (20 × 3)] ÷ 10	m1	FT 'their 179'
= 17·9 ISW	A1	CAO
	5	

6.

		Mark scores given in table.
Beca's total score >21	B1	Possible to allow if table not completed if total > 21.
Beca's median score < 5	B1	Possible to allow if enough of table completed to ensure median < 5.
Beca's range < 7	B1	All of table must be completed for this B1. Penalise −1 from any marks gained if a score > 10 is included in the table.