ANSWERS

Averages – Past Paper Questions

5. Sixty pupils ran a distance of 200 metres. The table shows the grouped frequency distribution of the times taken by the pupils.

Time taken, t seconds	Number of pupils (1)	
$30 < t \leqslant 34$	2 × 32 =	64
$34 < t \leqslant 38$	9 × 36 =	324
$38 < t \leqslant 42$	30 × 40 =	1200
$42 < t \leqslant 46$	11 × 44 =	484
$46 < t \leqslant 50$	8 × 48 =	384
	60	2456 (1)

Find an estimate for the mean of the time taken by the sixty pupils.

2456 ÷ 60 (1)

= 40·9 s. (1)

[4]

middle

3. Five numbers have a median of 9, a mode of 10, a range of 5 and mean of 8.
Find the five numbers.
Write your numbers in order in the boxes.

add up to 40.

(1)	(1)	(1)	(1)	
5	6	9	10	10

[4]

14. Alan and Clive each take part in 10 sports quiz competitions. The actual results have been lost but their mean score and standard deviations are given in the table below.

Player	Mean score	Standard deviation
Alan	55·9	2·6
Clive	79·4	5·3

(a) Which one of the two players is more consistent in the competitions?
You must state a reason for your choice.

Alan – lower standard deviation

1

[1]

(b) Which one of the two players would you say is better at the competitions?
You must state a reason for your choice.

Clive – mean (average) is higher

1

[1]

(c) Some of the sports quiz questions refer to the 1980s. Alan is much younger than the other competitors and it was decided that 3 points should be added to his score in each of the 10 competitions. Complete the table to show Alan's data following this adjustment.

Player	Mean score	Standard deviation
Alan	58·9	2·6
Clive	79·4	5·3

[1]

1

4. Trainer sizes are given as whole numbers.

A survey of the size of trainers worn by 20 women is carried out.
The table below shows a summary of the results.

Size of trainers	Number of women	
34 to 36	4 × 33	= 132
37 to 39	12 × 38	= 456
40 to 42	3 × 41	= 123
43 to 45	1 × 44	= 44
	20 (1)	755 (1)

(a) Calculate an estimate for the mean size of these trainers.

755 ÷ 20 = 37·75 (1)

[4]

(b) Which is the modal group?

37 to 39. (1)

[1]

14. (a) The marks scored by 10 pupils in a test were as follows:

48 26 82 34 56 86 56 24 72 63

Calculate the mean and standard deviation of the 10 test marks.

Mean, $\bar{x}$ = 547 ÷ 10 = 54·7. (1)

SD = 20·8 (2)

(use calculator)

[3]

6. A supermarket collects information about varieties of apples. The information is shown in the table below.

	Mean weight	Modal weight	Median weight	Range
Royal Gala Apple	108 g	105 g	106 g	13 g
Pink Lady Apple	112 g	105 g	104 g	24 g

(a) A counter display is made using 100 apples. Calculate the approximate mean weight of these 100 apples, given that there are 60 Royal Gala apples and 40 Pink Lady apples.
You must show all your working.

$60 \times 108 = 6480$ (1)

$40 \times 112 = 4480$ (1)

Total = 10960 g (1)

$\therefore 10960 \div 100 = 109.6$ g (1)

[4]

(b) To create a display in the entrance hall of the supermarket, one of these varieties of apple is selected. The supermarket wants all the apples it sells to be roughly the same size. Which variety of apple should the supermarket select for the display? You must give a reason for your answer.

Royal Gala (1) Lower range so more consistent in size. (1)

[2]