23. Elections to choose members of a committee at a sports club take place every five years. When the committee was elected on 10th January 2003, the ages (in years) of its members had a mean of 41 and a standard deviation of 6·8.

(a) What was the mean and standard deviation of the ages of members of the committee on 10th January 2005?

Mean .....

Standard deviation .....

[2]

(b) The oldest member of the committee decides to leave and is not replaced. Describe the effect of this on the mean age of the committee.

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[1]

19. A survey of the cost per litre of unleaded petrol at garages in a particular area was carried out. It was calculated that the mean was 76.8p and the standard deviation was 2.8p.
Following a price cut all the garages then reduced the price of unleaded petrol by 1p per litre.
Write down the mean and standard deviation of the unleaded petrol following the price cut.

Mean .....

Standard deviation .....

[2]

20. Calculate the standard deviation of the following 10 numbers.

4·6, 6·2, 7·3, 8·1, 9·3, 12·7, 13·1, 14·2, 17·1, 18·2.

[3]

21. Calculate the mean and standard deviation of the following set of 12 numbers.

34, 23, 35, 64, 56, 52, 48, 32, 40, 57, 36, 45

[3]

20. A grouped frequency distribution of the marks scored by 90 girls in an English examination is given in the table below.

Mark	0 to 19	20 to 39	40 to 59	60 to 79	80 to 99
Frequency	9	12	20	32	17

An estimate for the mean marks scored by these girls is 57·5.

(a) Calculate an estimate for the standard deviation of the marks.

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[4]

(b) Each pupil had her mark for the examination increased by 3 marks for good spelling, punctuation and grammar. State estimates for the mean and standard deviation of the increased marks.

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[2]