Standard Deviation

- 1. For each of the following sets of data, calculate the mean and the standard deviation.
 - (a) 40, 41, 39, 42, 41, 40, 39, 40, 41, 40
 - (b) 18, 43, 29, 52, 24, 13, 65, 21, 62, 41
 - (c) 4·3, 4·5, 4·8, 4·1, 4·2, 4·4, 4·5, 4·7, 4·9, 4·2
 - (d) 1·2, 1·3, 1·4, 1·2, 1·2, 1·0, 1·4, 1·1, 1·2, 1·3
- 2. The highest temperatures, in ⁰C, during a ten day period in a typical Scottish summer were recorded. The results are shown below.

18 20 19 17 21 18 19 23	18	20	19	17	21	18	19	23	22
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- (a) Calculate the mean temperature.
- (b) Calculate the standard deviation in the temperature.
- (c) The mean temperature over the same ten day period in Barcelona was 29°C and the standard deviation was 1.2°C. Make two valid comparisons between the sets of data.
- 3. Richard plays golf with his brother Thomas every month. They complete a half round of golf. Their scores last month are written on the scorecards below.

Richard	4	3	4	3	1	3	2	5	3
Thomas	5	4	4	6	2	3	4	6	5



- (a) Calculate the mean and standard deviation of the scores.
- (b) Make two valid comparison between both players scores.

4. The ages of ten people in a college class are shown below.

21 18 32 27 31 45 19 22 24 29

- (a) Calculate the mean and standard deviation of the group of students.
- (b) They meet up 10 years later for a reunion. Write down the mean and standard deviation for the reunion.
- 5. The scores of 8 pupils in a prelim examination are recorded below.



- 60% 82% 71% 63% 44% 38% 53% 61%
- (a) Calculate the mean and standard deviation of the pupils scores.
- (b) By the time the pupils get to the final exam it is expected they will each improved by 12%.Write down the mean and standard deviation for the expected final exam results.
- (c) Another group of pupils in the same class had a mean score of 65% in the prelim and a standard deviation of 2.3. Make two valid comparisons between the groups of pupils.

6. THIS QUESTION SHOULD BE ATTEMPTED USING THE FORMULA BELOW.

$$\sqrt{\frac{\Sigma x^2 - (\Sigma x)^2/n}{n-1}}$$

Calculate the standard deviation using the following information.

- (a) $\sum x = 190$, $\sum x^2 = 4675$, set of 8 numbers.
- (b) $\sum x = 84$, $\sum x^2 = 1282$, set of 6 numbers.
- (c) $\sum x = 41.5$, $\sum x^2 = 88$, set of 20 numbers.