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 ^{0}C, 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 22 24

   (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^{0}C and the standard deviation was 1.2^{0}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.