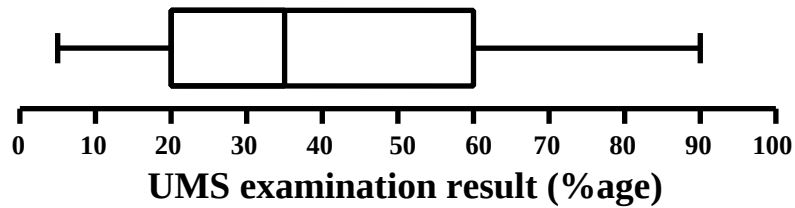


A-Level Mathematics : Statistics : Year 1
Progress Test Revision #2

*On mean, median, mode, lower & upper quartiles,
interquartile range, skew, variance, standard deviation and coding*

Question 1

The box and whisker diagram shows the Year 1 Statistics examination results of some students.



- (i) What is the highest mark obtained by a student in the examination ?
- (ii) What is the median mark obtained by the students ?
- (iii) What is the inter quartile range of the marks scored by the students ?
- (iv) Is the skew positive, symmetrical or negative ?
Give a reason for your answer.

Question 2

Calculate the mean and the standard deviation of the numbers; 4, 5, 6, 7, 8, 9, 10

Question 3

A set of 14 examination marks in a test were as follows

8	15	18	24	30	37	38
40	42	56	58	62	66	70

- (i) Find the median value

- (ii) Find the lower and upper quartiles

- (iii) What is the interquartile range ?

Question 4

For a certain set of data,

$$\sum x = 263 \qquad \sum x^2 = 6456 \quad \text{and} \quad n = 12$$

Find the mean and the variance of this set of data.

Question 5

The lengths of 40 leaves was measured, giving the following grouped frequency table

Length (mm)	30 - 39	40 - 44	45 - 54	55 - 59
Frequency	9	16	7	8

- (i) Which class is the modal class ?
- (ii) Write down the midpoint of the class 30 - 39
- (iii) Estimate the mean and standard deviation of the lengths of leaves
- (iv) Use linear interpolation to find the median length
- (v) Use linear interpolation to find the upper quartile
- (vi) Find the 84th percentile, P_{84}

Question 6

The mean marks for a statistics exam were worked out for two classes,

Class A had 12 students with a mean mark of 78

Class B had 16 students with a mean mark of 86

Work out the mean mark for the whole group of 28 students.

Question 7

Three numbers x, y, z have mean 4 and standard deviation 3.

Write down the means and standard deviations of the following groups of numbers;

(i) $5x, 5y, 5z$;

(ii) $x + 2, y + 2, z + 2$;

(iii) $5x + 2, 5y + 2, 5z + 2$.

Question 8

A set of 50 items of data is as follows;

x	$300 \leq x < 320$	$320 \leq x < 340$	$340 \leq x < 360$	$360 \leq x < 400$
f	14	16	12	8

The data is then coded, using the coding

$$y = \frac{x - 350}{10}$$

This produces summary totals of

$$\sum y = -64 \quad \sum y^2 = 360$$

Use this information to find the mean and standard deviation of the original values of x