Firrhill High

Mathematics Department

Level 5

Assessment Questions

Statistics

(1) 2010 Paper 1 Q.5

	KU	RE
A bag contains 27 marbles. Some are black and some are white.		
The probability that a marble chosen at random is black is $\frac{4}{9}$.		
(*a*) What is the probability that a marble chosen at random is white?	1	
(*b*) How many white marbles are in the bag?		1

(2) 2010 Paper 2 Q.3

A machine is used to put drawing pins into boxes.

A sample of 8 boxes is taken and the number of drawing pins in each is counted.

The results are shown below:

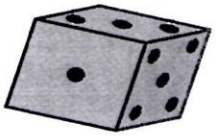
102 102 101 98 99 101 103 102

(*a*) Calculate the mean and standard deviation of this sample. **3**

(*b*) A sample of 8 boxes is taken from another machine.
This sample has a mean of 103 and a standard deviation of 2·1.
Write down two valid comparisons between the samples. **2**

(3) 2009 Paper 1 Q.6

There are 4 girls and 14 boys in a class.
A child is chosen at random and is asked to roll a die, numbered 1 to 6.



Which of these is more likely?

A: the child is female.

OR

B: the child rolls a 5.

Justify your answer. **3**

(4) 2009 Paper 2 Q.5

Tom looked at the cost of 10 different flights to New York.

He calculated that the mean cost was £360 and the standard deviation was £74.

A tax of £12 is then added to each flight

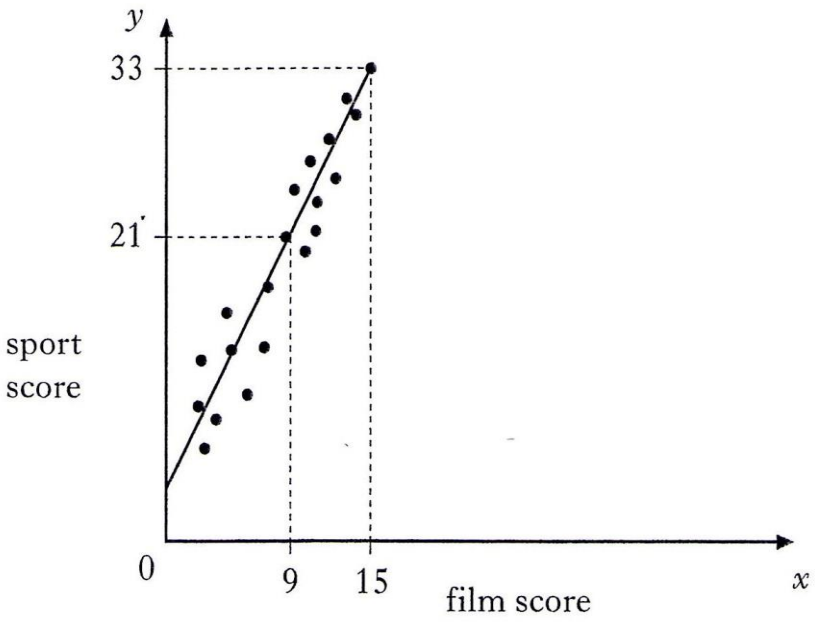
Write down the new mean and standard deviation. 2

(5) 2009 Paper 2 Q.6

KU	RE

Teams in a quiz answer questions on film and sport.

This scatter graph shows the scores of some of the teams.



A line of best fit is drawn as shown above.

(*a*) Find the equation of this straight line. **4**

(*b*) Use this equation to estimate the sport score for a team with a film score of 20. **2**

(6) 2008 Paper 1 Q.7

The 4th term of each number pattern below is the **mean** of the previous three terms.

(*a*) When the first three terms are 1, 6, and 8, calculate the 4th term. **1**

(*b*) When the first three terms are x, $(x + 7)$ and $(x + 11)$, calculate the 4th term.

(*c*) When the first, second and fourth terms are

$$-2x, \qquad (x + 5), \qquad \_\_\_\_, \qquad (2x + 4),$$

calculate the 3rd term.

(7) 2008 Paper 2 Q.2

In a class, 30 pupils sat a test.

The marks are illustrated by the stem and leaf diagram below.

Test Marks

0	9
1	6 6 7 8
2	0 4 5 7 9 9 9
3	2 2 3 5 5 6 8
4	0 2 3 4 5 5 7 7 8
5	0 0

n = 30 $\qquad\qquad$ 1 | 6 = 16

(*a*) Write down the median and the modal mark. **2**

(*b*) Find the probability that a pupil selected at random scored **at least** 40 marks. **1**

(8) 2007 Paper 1 Q.3

There are 400 people in a studio audience.

The probability that a person chosen at random from this audience is male is $\frac{5}{8}$.

How many males are in this audience? **2**

(9) 2007 Paper 2 Q.3

(*a*) During his lunch hour, Luke records the number of birds that visit his bird-table.

The numbers recorded last week were:

28 32 14 19 18 26 31.

Find the mean and standard deviation for this data. **4**

(*b*) Over the same period, Luke's friend, Erin also recorded the number of birds visiting her bird-table.

Erin's recordings have a mean of 25 and a standard deviation of 5.

Make **two** valid comparisons between the friends' recordings. **2**

(10) 2006 paper 2 Q.2

(*a*) The pulse rates, in beats per minute, of 6 adults in a hospital waiting area are:

68 73 86 72 82 78.

Calculate the mean and standard deviation of this data. **3**

(*b*) 6 children in the same waiting area have a mean pulse rate of 89·6 beats per minute and a standard deviation of 5·4.

Make **two** valid comparisons between the children's pulse rates and those of the adults. **2**

(11)