GCSE Stats Revision Paper 1

35 marks - 40 minutes (ET +10 minutes)

Higher Tier Formulae

You must not write on this page.

Anything you write on this page will gain NO credit.

$$\text{Skew} = \frac{3(\text{mean} - \text{median})}{\text{standard deviation}}$$

$$\text{Standard deviation} = \sqrt{\frac{1}{n}\sum(x - \bar{x})^2}$$

An alternative formula for standard deviation is

$$\text{standard deviation} = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

Spearman's rank correlation coefficient

$$r_s = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

Rates of change (e.g. Crude birth rate = $\frac{\text{number of births} \times 1000}{\text{total population}}$)

1

Below are the mean and standard deviation for all the 100 m races in the 1984 and 2024 Olympcsi respectively.

	1984	**2024**
Mean (seconds)	10.18	10.00
Standard Deviation (seconds)	0.09	0.14

(a) Use this information to compare the distribution of race times for the 1984 and 2024 Olympic 100m races.
Interpret one of your comparisons in context. (3 marks)

(b) The times of the winners of the 1984 and 2024 Olympic gold medal are shown below. Use standarised scores to decide which one was the better runner compared to the other competitors.

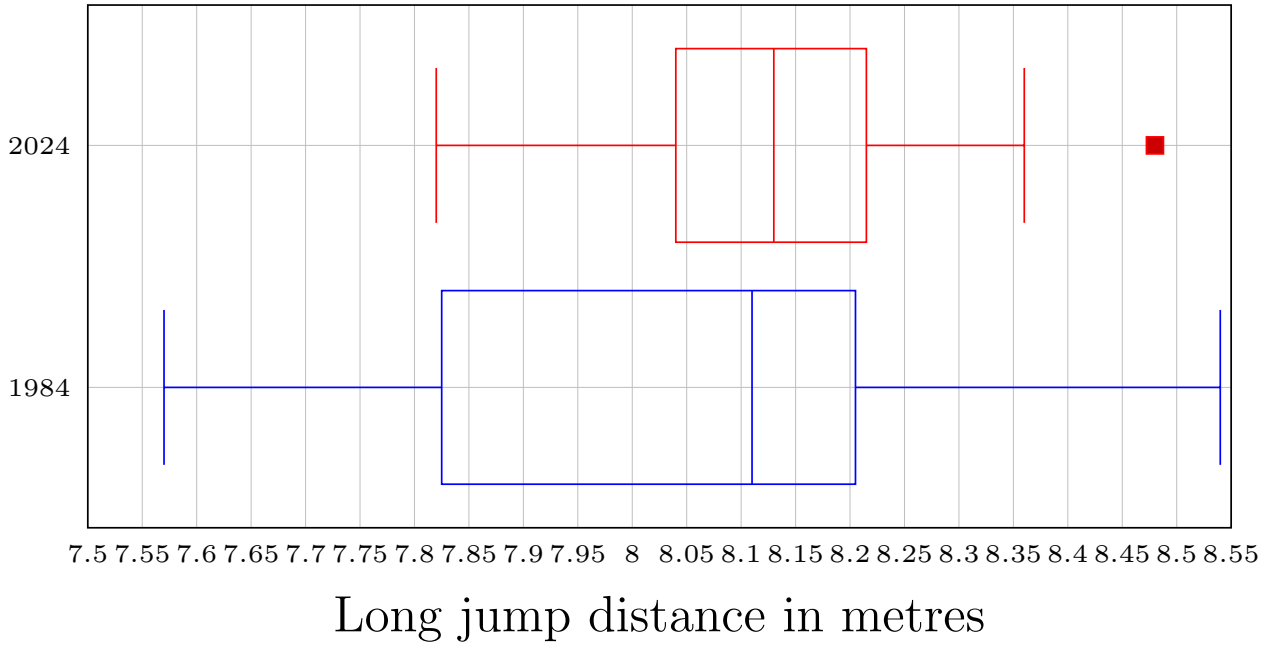
1984	2024
9.99s	9.79s

Explain your conclusion.

(4 marks)

2

These two boxplots show the results for the men's long jump (qualifying and final) in the 1984 and 2024 Olympics.



(a) Given that for 2024, the lower quartile is 8.04m. median is 8.13m, upper quartile is 8.215m. Show that the winning jump of 8.48m is an outlier. (3 marks)

(b) Comment on the differences between the two distributions (4 marks)

3

Below are the scores for the Women's Street Skateboarding in the 2024 Olympics.

Skater	**Run Score**	**Best Trick**				
Coco Yoshizawa (Japan)	96.49	90				
Liz Akama (Japan)	89.26	92.62				
Rayssa Leal (Brazil)	92.88	85				
Chenxi Cui (China)	88.83	80				
Poe Pinson (USA)	85.12	75				
Paige Heyn (USA)	81.23	70				

(a) Calculate Spearman's rank correlation coeeficient for the competitors score in the run and their best trick. (3 marks)

4

In a supermarket, apples are sold in bags of 6 apples.

The probability that any given apple will be bruised is 5%.

(a) If you buy 1 bag of apples, what is the probability that no apples will be bruised. (2 marks)

(b) If you buy 1 bag of apples, what is the probability that less than half of the apples with be bruised?
Give your answer to 3 significant figures. (3 marks)

5

Below are the chainbase index numbers for the average price of petrol each month for the first 6 months of 2024.

Month	Jan	Feb	Mar	Apr	May	Jun
Chain Base Index	100	104.56	109.09	115.23	109.77	109.57

(a) Which month is the base month? (1 mark)

(b) Which month did petrol prices increase the most? Explain your reasoning. (2 marks)

(c) Calculate the average percentage increase per month for the petrol prices for the Feb - June of 2024.
Give your answer to 3 significant figures. (3 marks)