Statistics

YEAR	PAPER	QUESTION
2014	2	A runner has recorded her times, in seconds, for six different laps of a running track.

A runner has recorded her times, in seconds, for six different laps of a running track.

$$53 \quad 57 \quad 58 \quad 60 \quad 55 \quad 56$$

(a) (i) Calculate the mean of these lap times.

Show clearly all your working. **1**

(ii) Calculate the standard deviation of these lap times.

Show clearly all your working. **3**

(b) She changes her training routine hoping to improve her consistency.

After this change, she records her times for another six laps.

The mean is 55 seconds and the standard deviation 3·2 seconds.

Has the new training routine improved her consistency?

Give a reason for your answer. **1**

2015 1

The standard deviation of 1, 2, 2, 2, 8 is equal to $\sqrt{a}$.

Find the value of a. **3**

2015 1

Ten couples took part in a dance competition.

The couples were given a score in each round.

The scores in the first round were

16   27   12   18   26   21   27   22   18   17

(a) Calculate the median and semi-interquartile range of these scores. **3**

(b) In the second round, the median was 26 and the semi-interquartile range was 2·5.

Make two valid comparisons between the scores in the first and second rounds. **2**

2016	2	
		Jack called his internet provider on six occasions to report connection problems.

On each occasion he noted the length of time he had to wait before speaking to an adviser.

The times (in minutes) were as follows:

$$13 \quad 16 \quad 10 \quad 22 \quad 5 \quad 12$$

(a) Calculate the mean and standard deviation of these times. **4**

(b) Sophie also called the same internet provider, on several occasions, to report connection problems.

Her mean waiting time was 15 minutes and the standard deviation was 4·3 minutes.

Make two valid comments comparing Sophie's waiting times with Jack's waiting times. **2**

2017	1	

The number of calls received by the police was recorded over 10 days.
The results are shown below.

198   216   218   230   232   247   248   250   265   267

Find the semi-interquartile range of this data. **2**

2017	1	

Gym members are asked to fill out a questionnaire to rate the quality of service provided.

They are asked to give a rating on a scale of 1 to 6.

The ratings given by five members were as follows:

$$1 \quad 4 \quad 6 \quad 3 \quad 6$$

In its simplest form, the standard deviation of these ratings can be written as $\dfrac{a\sqrt{b}}{2}$.

Find the values of a and b. **4**

2018	2	A farmers' market took place one weekend.

Stallholders were asked to record the number of customers who visited their stall.

The number of customers who visited six of the stalls on Saturday were as follows:

$$120 \quad 126 \quad 125 \quad 131 \quad 130 \quad 124$$

(a) Calculate the mean and standard deviation of the number of customers. **4**

The mean number of customers who visited these six stalls on Sunday was 117 and the standard deviation was 6·2.

(b) Make two valid comments comparing the number of customers who visited these stalls on Saturday and Sunday. **2**

2019	1	

The midday temperatures in Grantford were recorded over a nine day period.

The temperatures, in °C, were

$$4 \quad 7 \quad 4 \quad 3 \quad 6 \quad 10 \quad 9 \quad 5 \quad 3$$

(a) Calculate the median and semi-interquartile range for these temperatures. **3**

Over the same nine day period the midday temperatures in Endoch were also recorded.

The median temperature was 8 °C, and the semi-interquartile range was 1·5 °C.

(b) Make two valid comments comparing the midday temperatures of Grantford and Endoch during this period. **2**

2022	2	A school netball team recorded the number of sit-ups each player completed in a minute.
		The numbers for the seven players were:
		29 27 24 31 22 19 30
		(a) Calculate the mean and standard deviation of the numbers of sit-ups. 4
		Some players in the school's hockey team also recorded the number of sit-ups they completed in a minute.
		Their numbers gave a mean of 29 and a standard deviation of 3.2.
		(b) Make two valid comments comparing the numbers of sit-ups of the players in the netball team and the hockey team. 2