6492MR: Assignment 4

Before doing this assignment you need to work through Chapters 10 and 11 of your textbook:

New Century Maths 11 Mathematics Standard (Pathway 2)

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(see your OLS for more details)

What you need to do

a) **Handwrite** the answers to the following questions **on your own paper**, showing all necessary working.

b) There are 2 sections in this assignment:

1. **Analysing Data (SECTION A)**
2. **World Locations and Times (SECTION B)**

c) Attempt all questions in each section.

d) Leave plenty of space around your answers for your teacher's comments and ways to improve your work.

e) If you have studied the work in your textbook, and you are stuck on an assignment question, you can contact us for help.

f) It is important to present your work clearly and well to avoid having it returned to you unmarked as a non-serious attempt.

Section A: Analysing Data

1 A sample of 12 students was asked how many hours they had studied the week before their final exam.

Their responses were as follows:

> 18 40 14 23 14 15 18 14 19 13 16 12

Find the

   a) i) mean

   ii) mode

   iii) median

   b) Discuss the effect on the mean of removing the outlier from the given data.

2 State which measure of location (mean, mode or median) is most appropriate for describing each of the following:

   a) the average weight of new born babies

   b) the average price paid for a house in Sydney

   c) the most common holiday destination for Australians

3 a) For the following data set:

> 7 9 2 5 4 11 1 4 40

   Find:

   i) the range   ii) the interquartile range

   b) Which of the two measures calculated in part (a) is the best representation of the spread of this data? Give a reason for your answer.

4   The following data represents the ages of 20 defence force recruits:

17   17   19   19   19   20   20   20   21   22

22   23   25   25   26   26   27   28   28   29

What is the:

a) 7th decile?   b) 90th percentile?

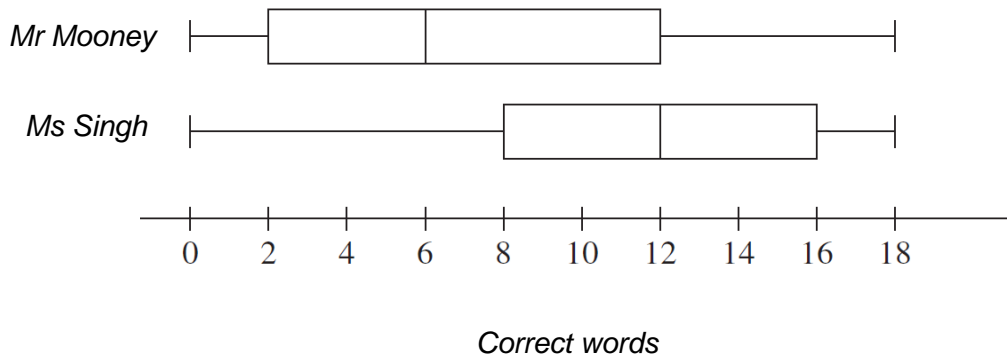**5**   The table below shows the ages of a class of 60 students enrolled in the HSC course at TAFE Digital.

Age	Frequency
18	14
19	25
20	16
21	5

Using the statistical mode on your calculator, find the population standard deviation of these ages.

6   An outlier is defined as a data point that lies at least 1.5 times the interquartile range above the upper quartile or below the lower quartile.

For a set of data, the lower quartile (Q_1) is 51 and the upper quartile (Q_3) is 57

Which one of the following scores is an outlier?

A. 54   B. 41

C. 65   D. 61

7   The box plots below show the summary results of two primary school classes in a spelling test consisting of 20 very difficult words.

Mr Mooney

Ms Singh

| | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |

Correct words

a)   What is the median number of correct words for the students in

   i)   Ms Singh's class?

   ii)   Mr Mooney's class?

b)   What is the interquartile range for Mr Mooney's class?

c)   What percentage of students in Ms Singh's class answered 12-18 words correctly?

d)   Which of the data sets shown is negatively skewed? Give a reason for your answer.

e)   Which class had the better results? Give reasons referring to the medians **and** relevant percentages.

8 The table below shows the wages of employees at the Yacht Club.

a) Copy the table and complete the class centre column.

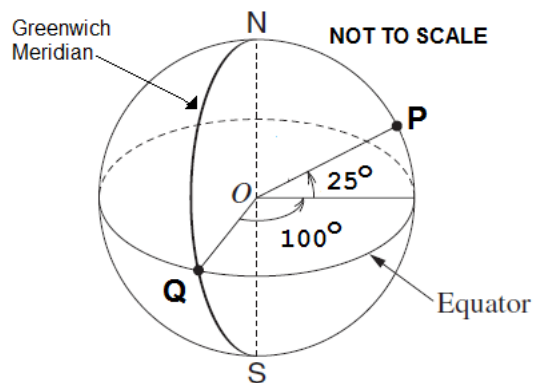| Hourly wage	Class Centre	Frequency
14-18		44
19-23		35
24-28		13
29-33		8

b) How many employees are shown in the table?

c) What is the modal class?

d) Calculate an estimate of the mean wage.

Section B: World Locations and Times

1 In the diagram of the earth below, **O** is the centre.

Point Q lies on both the equator and the Greenwich meridian.

Write down the coordinates of:

a)   Q

b)   P

2 Sydney NSW has coordinates $(34^\circ\,\mathrm{S}, 151^\circ\,\mathrm{E})$ and Hanging Rock NSW has coordinates $(31^\circ\,\mathrm{S}, 151^\circ\,\mathrm{E})$

a) What is the difference in latitude between Sydney and Hanging Rock?

b) Is Hanging Rock north or south of Sydney?

3 The table below shows the coordinates of three cities.

City	Location
Boston USA	$(42^\circ\,\text{N}, 71^\circ\,\text{W})$
Santiago Chile	$(33^\circ\,\text{S}, 71^\circ\,\text{W})$
Sofia Bulgaria	$(42^\circ\,\text{N}, 23^\circ\,\text{E})$

    a) Which two cities have the same latitude?

    b) Which of the cities is closest to the equator?

    c) What is the difference in longitude between Santiago and Sofia?

4 If Melbourne has coordinates $(37^\circ\,\text{S}, 145^\circ\,\text{E})$, write down the coordinates of the location which is 4° due east of Melbourne.

5 Convert each of the following 24-hour times to 12-hour times indicating a.m. or p.m.

    a) 1140   b) 2215

6 A movie starts at 9:04 p.m. and finishes at 10:48 p.m. How long is the movie?

7 Shown below is part of a timetable for trains travelling between Epping and Central

STATIONS												
Epping	04:02	04:47	05:00	05:17	05:30	05:47	06:00	06:02	06:17	06:30	06:32	06:45
Eastwood	04:05	04:50	05:03	05:20	05:33	05:50	06:03	06:05	06:20	06:33	06:35	06:48
Denistone		04:52		05:22		05:52		06:07	06:22		06:37	
West Ryde		04:54		05:24		05:54		06:09	06:24		06:39	
Meadowbank		04:56		05:26		05:56		06:11	06:26		06:41	
Rhodes		04:59		05:29		05:59		06:14	06:29		06:44	
Concord West		05:01		05:31		06:01		06:16	06:31		06:46	
North Strathfield		05:03		05:33		06:03		06:18	06:33		06:48	
Strathfield	04:14	05:09	05:13	05:39	05:43	06:09	06:13	06:24	06:39	06:43	06:54	06:58
Burwood		05:11		05:41		06:11		06:26	06:41		06:56	
Redfern	04:25	05:20	05:24	05:50		06:20	06:24	06:35	06:50		07:05	07:09
Central	04:28	05:23	05:27	05:53	05:56	06:23	06:27	06:38	06:53	06:56	07:08	07:12

a) Ali arrived at Epping at 05:45. If he caught the next available train, what time did he get to Strathfield?

b) James boarded the 06:35 train from Eastwood. How long did the trip take from Eastwood to Burwood on this train?

c) Rahul's daily journey to Central takes 29 minutes. At what station does he get on the train?

d) Mandy planned to catch the 05:33 train from Eastwood to Central but missed it and caught the next one instead. How much longer was the journey of the train Mandy caught, compared to the 05:33 train she had planned to take?

8 Generally Western Australia is 2 hours behind NSW. However in the summer months, NSW adopts daylight saving time. If it is 8:30 am on 3rd December in NSW what time is it in Western Australia?

9 Sydney is 10 hours ahead of UTC (Coordinated Universal Time) while New York is 5 hours behind UTC.

If an important event is being broadcast live from Sydney at 11:30 am on Thursday what time and day is it in New York?

10 Christos is travelling by plane from Sydney to Athens to visit his family.

a) He leaves Sydney at 1:10 p.m. on Tuesday and he arrives in Athens at 8:45 am Wednesday *Sydney Time*. How long was the journey in hours and minutes?

b) What is the local time in Athens when Christos arrives there if Sydney is UTC+10 and Athens is UTC+2?

11 Akira, in Tokyo, Japan wants to chat online to his cousin, Emiko, who is in Vancouver, Canada for her birthday.

If Canadian Pacific Standard time is 8 hours behind UTC and Tokyo is 9 hours ahead of UTC, what time should Akira log on to chat to Emiko at 6 a.m. Friday in Vancouver?

Checklist

I have:

- answered all questions on my own paper in my own hand-writing
- written clear working
- attempted all questions
- included all graphs.

If you are unable to complete this task for a specific reason, please contact your teacher to discuss alternative arrangements for demonstrating your skills and knowledge.