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| Name:  Class: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Date: \_\_\_\_\_\_\_\_\_\_\_ |
|  | **Year 11 Essential Mathematics**  SCORE:  /34    **Data Test 2020**  **Topic – Data analysis and Displays**  ***Full working out MUST be shown to get full marks for each question.*** | | |
| **Total Time:** | 50 minutes |  | |
| **Weighting:** | 9% |
| **Equipment:** | To be provided by the student: Pen, pencil, ruler, scientific calculator,1 single sided page of A4 notes | | |

**Question 1** (5 marks)

**For each of the following, indicate whether it is categorical (C) or numerical (N) data:**

|  |  |
| --- | --- |
| 1. the speed of a bicycle |  |
| 1. the number of brothers and sisters you have |  |
| 1. the annual salary of an individual |  |
| 1. Country of birth |  |
| 1. Favourite food |  |

**Question 2** (3 marks)

1. Circle the outlier/s in the following data set

2 10 10 14 14 15 18 20

1. Describe what happens to the median and the mean if the outlier is removed.

**Question 3** (10marks)

The following scores were achieved in a short test in Mr Tusak’s Mathematics class.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 80% | 73% | 77% | 61% | 85% | 83% | 65% | 11% | 92% | 59% |
| 96% | 82% | 75% | 77% | 61% | 68% | 62% | 71% | 100% | 97% |

1. For the scores above determine the:
2. Mean:
3. Mode:
4. Median:
5. Range:
6. Are there any outliers? If so, are they reasonable or likely to be a mistake? Explain you answer.
7. Use a suitable graphical display to represent the data set.

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**Question 4** (7 marks)

Mum and Lucy were having an argument about the number of hours she spends on Facebook each night. They decided to record how many hours she spent on Facebook for one week. The results are shown below.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Day** | **Mon** | **Tues** | **Wed** | **Thurs** | **Fri** | **Sat** | **Sun** |
| **Hours on Facebook** | 4 | 2 | 2 | 1 | 6 | 4 | 8 |

1. Find the mode, median and mean for this data.
2. Which of these measures could Mum use to demonstrate that Lucy spends too long on

Facebook? Explain your reasoning.

1. Which of these measures could Lucy use to show that she doesn’t spend too much time on Facebook? Explain your reasoning.

**Question 5** (9 marks)

The following data shows the survey results of the number of children in families**.**

3, 5, 2, 4, 3, 1, 4, 1, 2, 5, 3, 6, 4, 3, 5, 4, 4

Use graph paper below to draw a dot frequency graph (dot plot) to represent this information.

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1. How many families were included in the data?
2. How many families had more than 3 children?
3. What percentage of families had more than 2 children?
4. Describe the spread of the data