**Math Reviewer**

**Statistics**

* Branch of Math dealing the collection, organization, presentation, analysis and interpretation of data.
* The study of data
* Knowledge of statistics can help you become more critical in your analysis of information; hence you will not be misled.

**Definitions:**

* **Population** – Complete collection of all elements to be studied. (Example: All students in APHS)
* **Census** – Collection of data from every element in a population.
* **Sample** – Subcollection of elements drawn from a population. (Example: Survey of 500 people)

**Data Set:**

* **Quantitative Data**
* Consists of numbers representing counts or measurement.
* **Discrete Quantitative Data** – Data that is countable.
* **Continuous Quantitative Data** – Data resulting of a measurement.
* **Example**: Age of congressmen. (Continuous)
* **Qualitative Data**
* Distinguished by non-numerical characteristics.
* Separated in different categories.
* **Example**: Body types of Epiphone guitars.

**Level of Measurements:**

* **Nominal**
* Data consisting of names, labels, or categories only.
* **Example**: Gender of members in the band Leo/need.
* **Example2**: Political party to which governor belongs to.
* **Ordinal**
* Data that may be arranged in some order, having no inherent starting point.
* Differences between data values cannot be determined or is meaningless.
* **Example**: Rate of some projects.
* **Example2:** Judge rates as “good”.
* **Interval**
* Similar to ordinal, but meaningful amounts of differences between data can be determined.
* No inherent (natural) starting point (where none of the quantity is present).
* **Example**: Average annual temperature in Moscow, Russia.
* **Example2**: Weight of basketball players.
* **Ratio**
* Where the interval level modified to include the inherent starting point.
* **Example**: Weight of garbage disposed by households.
* **Example2**: Annual income of teachers.

**Collection, Organization and Presentation of Data**

* **Data** – Collection of facts or information.
* **Primary Data** – Data coming from primary sources such as government agencies, business institutions, organizations, and any person who possesses original data relevant to the problem.
* **Secondary Data** – Data obtained from journals, magazines, newspapers, and any republished material.

**Ways Data May Be Gathered:**

* **Interview Method** – Done when a person solicits information from another person. A person gathering the data is called “interviewer” and the person supplying the data is called “interviewee”.
* **Questionnaires Method** – Utilizes questions to obtain data. Which can be mailed or hand carried to respondents. More economical than the interview method.
* **Observation Method** – Way of collecting data through observing.
* **Reading Statistical Publications** – Researchers make use of vital statistics such as birth/death rate, marriages, and the like in making projections of trends and values on historical data.

**Organizing and Presenting Data**

1. **Textual Form**

* Means data presented in the form of words, sentences, and paragraphs.
* Used when data to be presented are purely qualitative (categorical) or involve few numbers.
* Data presented by enumerating and identifying important characteristics and features with emphasis on the significant figures.

1. **Tabular Form**

* Contains four main components: Table Heading, Body, Stubs, Box Heads, and Footnote.
* **Table Heading** – Shows the table number and the table title.
* **Body** – Main part of the table containing quantitative information.
* **Stubs** – Labels of categories presented as values of a variable, usually found in the left part.
* **Boxheads** – Captions that appear above columns.
* **Footnote** – Source not may be placed below the table.

**Example of Data Table:**

**Number of Cars Registered in the Key Cities of Metro Manila**

**by Type of Fuel Used**

**(Table Heading)**

|  |  |  |
| --- | --- | --- |
| **Cities (Boxheads)** | **Gas (Boxheads)** | **Diesel (Boxheads)** |
| Manila (Stubs) | 27,300 (Body) | 10,428 (Body) |
| Quezon (Stubs) | 32,583 (Body) | 13,647 (Body) |
| Caloocan (Stubs) | 29,123 (Body) | 8,762 (Body) |
| Pasay (Stubs) | 15,876 (Body) | 8,634 (Body) |
| San Juan (Stubs) | 22,336 (Body) | 11,428 (Body) |
| Makati (Stubs) | 15,223 (Body) | 9,978 (Body) |
| Pasig (Stubs) | 17,645 (Body) | 4,378 (Body) |

**Collection, Organization, and Collection of Data**

**Example of Data Chart (No Given Data Set):**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Given Data**  **(i = 2)** | **Tally** | **True Limits** | **Frequency** | **Less Than Cumulative Data** | **More Than Cumulative Data** |
| 14 – 15 | | | 13.5 – 15.5 | 1 | 60 | 1 |
| 12 – 13 | ||| | 11.5 – 13.5 | 3 | 59 | 4 |
| 10 – 11 | ||| | 9.5 – 11.5 | 3 | 56 | 7 |
| 8 – 9 | ||| | 7.5 – 9.5 | 3 | 53 | 10 |
| 6 – 7 | ~~||||~~ | | 5.5 – 7.5 | 6 | 50 | 16 |
| 5 | ~~||||~~ | | 4.5 – 5.5 | 6 | 44 | 22 |
| 4 | ~~||||~~ ||| | 3.5 – 4.5 | 8 | 38 | 30 |
| 3 | ~~||||~~ | | 2.5 – 3.5 | 6 | 30 | 36 |
| 2 | ~~||||~~ ~~|||||~~ | 1.5 – 2.5 | 10 | 24 | 46 |
| 1 | ~~||||~~ ~~|||||~~ ||| | 0.5 – 1.5 | 14 | 14 | 60 |