

ASSIGNMENT on STA102



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Section: 04**

STA102
Statistics and Probability
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Assignment 1

Question no 1 (Solution)

- a) The variables rating system mentioned in the question are categorical data.
- b) The scale is depending on the data visualization.
If we are using to showcase which service is best than we are using or considering the data as an ordinal data set. Or if we are using it to showcase the ratings or overall ratings for each service then we are considering the data set as Ratio data set. By overview, I meant the option will be shown from fair to excellent by rounding up the mean of total responses.

Answer to the question no 2

- a) The annual sales data must be "Quantitative" and "Ratio" level data.
- b) Soft drink size must be "Categorical" and "~~ordinal~~" data "Nominal" data.
- c) Employee classification data must be "Categorical" and "Ordinal data".
- d) Earnings per share data must be "Quantitative" and "Ratio" level data.
- e) Method of payment data must be "Categorical" and "Nominal" data.

Answer to the question no 3

- a) The population being studied was the people visiting Hawaii in June 2003.
- b) Comments on the four questions about whether the data set will be quantitative or categorical are given below.
- (i) This trip to Hawaii Non Categorical
- (ii) The primary reason for the trip Categorical
- (iii) Where I plan to stay Categorical
- (iv) Total days in Hawaii Also Quantitative

Answer to the question 4

a

From the tables City MPG field we can get the data of miles per gallon for ~~high way~~ city driving.

We can find the average miles per gallon by simply performing arithmetical mean:

So,

$$\text{mean, } \bar{x} = \frac{13 + 17 + 16 + 13 + 29 + 25 + 17 + 15 + 21 + 21}{10}$$

$$= 18.2 \text{ MPG}$$

Comment: The average miles per gallon is 18.2 City MPG for the provided data set.

b

From "a" we get the average miles per gallon for city driving is 18.2.

So,

$$\text{average MPG for High way, } \bar{x} = \frac{31 + 29 + 28 + 28 + 18 + 33 + 33 + 26 + 22}{10}$$

$$\text{Difference} = (26.1 - 18.2) = 7.9 \text{ MPG} = 26.1 \text{ MPG}$$

So, on average, 7.9 MPG higher is the miles per gallon for

C

From the table we can see there are total of 6 cars uses regular fuel & out of 10 cars.

$\therefore \left(\frac{6}{10} \times 100 \right) \% = 60\%$ of the cars uses regular fuel.

Answer to the question no 5

Table of Number of hours slept in a study:

Class Interval	Frequency	Relative Frequency	Cumulative Frequency less than type	Cumulative Frequency Relative less than type
3-5	15	15%	15	15%
5-7	40	40%	55 (B)	55% (c)
7-9	30	30% (A)	85	85%
9-11	15	15%	100	100%

- So, the value of A is 30% , so 30% individuals slept ~~so~~ 7 to 9 hours.

- The value of B is 55 , so 55 individuals slept ~~7 hours or~~ less than 7 hours.

- The value of C is 55 , so 55% individuals who slept ~~hours or~~ less than 7 hours.

Answer to the Question no 6

- a) There are 33 peoples of age between 20-60 years old.
- b) There are 31 Peoples of age at least 40 years old.
- c) The class interval is $(100 \div 5) = 20$.
- d) The chart is called Histogram, which is showing exclusive method frequency count chart.