**Concepts of Statistics Solutions**

1. If the variance of a variable/column is 0 then what does it mean? Can we use that variable for our analysis?

Solution: When the variance = 0, the values in your column/variable are all the same (it is a constant)

2. Calculate mean, median, mode, variance and standard deviation for column A

Mention all

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | D |
| 7 | 5 | 2003 | 2003 |
| 6 | 8 | 1976 | 1976 |
| 7 | 5 | 2001 | 2002 |
| 8 | 5 | 2000 | 2000 |
| 5 | 5 | 1993 | 1995 |
| 8 | 5 | 2004 | 2005 |
| 7 | 6 | 1973 | 1973 |
| 7 | 5 | 1931 | 1950 |
| 5 | 6 | 1939 | 1950 |
| 5 | 5 | 1965 | 1965 |
|  |  |  |  |

Solution:

μ =(ΣX)/N [Mean Formula]

Mean=(7+6+7+8+5+8+7+7+5+5)/10 = 6.5

Median = 7

Mode = 7

3. In a group of 12 scores, the largest score is increased by 36 points. What effect will this have on

the mean of the scores?

Solution: Let the scores be

(a1, a2, a3, a4, a5, \_ \_ \_ \_ \_ \_ a12)

Let mean of scores = M

M = (a1+a2+a3+a4+a5+a6+a7+a8+a9+a10+a11+a12)/12

Now let a1 be the highest /largest score

Since a1 is increased by 36 points, Let A1 be the new score and M’ be the mean of all scores

M’ = (A1+a2+a3+a4+a5+a6+a7+a8+a9+a10+a11+a12)/12

M’ = (a1+36+a2+a3+a4+a5+a6+a7+a8+a9+a10+a11+a12)/12

M’ = (a1+a2+a3+a4+a5+a6+a7+a8+a9+a10+a11+a12)/12+36/12

M’ = (a1+a2+a3+a4+a5+a6+a7+a8+a9+a10+a11+a12)/12+3

M’= M+3

New mean will be 3 points greater than the old mean of scores

4. Explain the difference between Data (Singular) and Data (Plural) with examples?

Solution: Data (singular): The value of the variable associated with one element of a population or

sample. This value may be a number, a word, or a symbol.

Example: In the below dataset, the cell marked in yellow is a singular or single dataset

Data (plural): The set of values collected for the variable from each of the elements belonging

to the sample.

Example: In the below dataset the data marked in green is the dataset in plural

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | C | D |
| 7 | 5 | 2003 | 2003 |
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| 8 | 5 | 2000 | 2000 |
| 5 | 5 | 1993 | 1995 |
| 8 | 5 | 2004 | 2005 |
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| 5 | 6 | 1939 | 1950 |
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|  |  |  |  |

5. How the inferential statistics helps to make decisions out of it?

Solution: Inferential Statistics use sample data to make estimates, decisions, predictions or other generalizations about a larger set of data.

Example: Survey companies use the inferential techniques in their polls to generalize to the US or other population.