

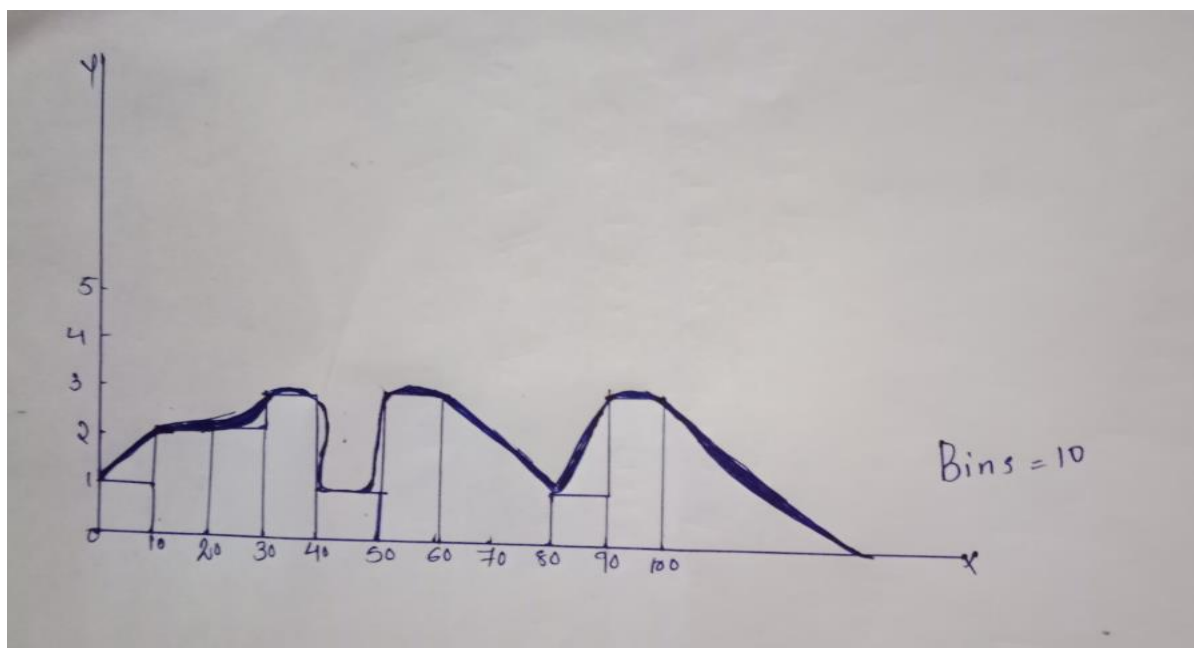
STATISTIC ASSIGNMENT 1 Ineuron .Ai

By Manjunath Pai

Que 1) Plot a histogram,

10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88, 90, 92, 94, 99

ANS;



Q.2. What is the value of the 99 percentile?

2,2,3,4,5,5,5,6,7,8,8,8,8,8,9,9,10,11,11,12

ANS:-

$$99/100 * 20 + 1 = 20.79 \text{ index}$$

The value of the 99 percentile = 12

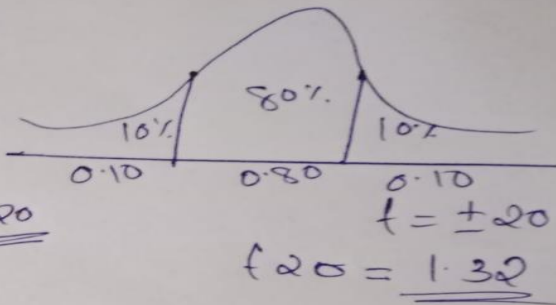
Que 3) In a quant test of the CAT Exam, the population standard deviation is known to be 100. A sample of 25 tests taken has a mean of 520. Construct an 80% CI about the mean.

Sample Mean (μ) = 520
 Sample Size (n) = 25
 S.D (σ) = 100
 C.L = 80%

$S.E = \frac{\sigma}{\sqrt{n}}$
 $S.M = \frac{100}{\sqrt{25}} = \frac{100}{5} = \underline{\underline{20}}$

$\mu = M \pm t(S.M)$
 $520 + 1.32 \times 20 = \underline{\underline{546.4}}$
 $520 - 1.32 \times 20 = \underline{\underline{493.6}}$

80% C.L that the population Mean (μ) falls b/w 546.4 and 493.6



Q.4. In left & right-skewed data, what is the relationship between mean, median & mode?

Draw the graph to represent the same.

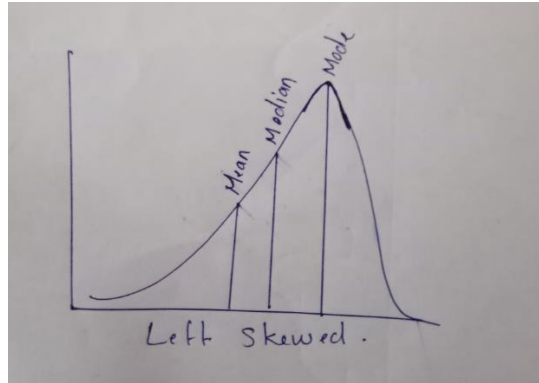
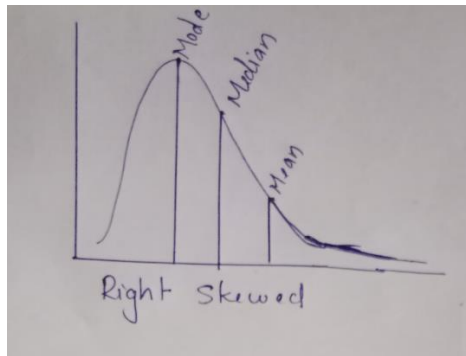
ANS: The relationship between mean, median & mode

Right Skewed Data = Mean > Median > Mode

Left Skewed Data = Mode < Median < Mean

A Right skewed distribution is longer on the right side of its peak than on its left. Right skew is also known as positive skewed

A Left skewed distribution is longer on the left side of its peak than on its Right. Left skew is also known as negative skewed



Que 5) A car believes that the percentage of citizens in city ABC that owns a vehicle is 60% or less. A sales manager disagrees with this. He conducted a hypothesis testing surveying 250 residents & found that 170 residents responded yes to owning a vehicle.

- a. State the null & alternate hypothesis.
- b. At a 10% significance level, is there enough evidence to support the idea that vehicle owner in ABC city is 60% or less.

ANS

Null hypothesis $H_0: P = 60\%$ $H_1: P \neq 60\%$

$$P = \frac{60}{100} = 0.6$$

$$P = \frac{80}{250} = 0.32$$

$$S.E = \sqrt{\frac{PQ}{n}}$$

$$Z = \frac{P - P}{S.E}$$

$$S.E = \frac{P - P}{S.E}$$

$$P = 0.6$$

$$Q = 1 - P$$

$$= 1 - 0.6$$

$$= 0.4$$

$$= \sqrt{\frac{0.6 \times 0.4}{250}}$$

$$= \sqrt{0.00096}$$

$$= \underline{\underline{0.0309}}$$

$$Z = \frac{0.32 - 0.6}{0.0309} = \frac{0.28}{0.0309} = \underline{\underline{9.061}}$$

level of Significance 10%

Table value 1.645

Calculated value is greater than table value

\therefore null hypothesis is rejected