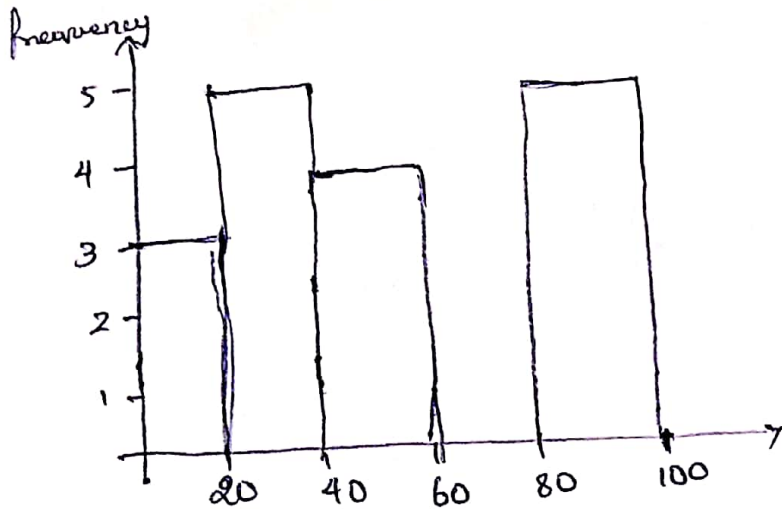


① Assignment:

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

Bins = 5

Bin Size = 20



② 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

$$\sigma = 100 \quad n = 25 \quad \bar{x} = 520$$

CI = Point estimate \pm Margin of error

$$= \bar{x} \pm Z_{\alpha/2} \frac{\sigma}{\sqrt{n}} \Rightarrow 520 \pm Z_{0.10} = 1.29$$

Lower fence:-

$$= 520 - 1.29 \left(\frac{100}{\sqrt{25}} \right)$$

$$= 520 - \frac{129}{5}$$

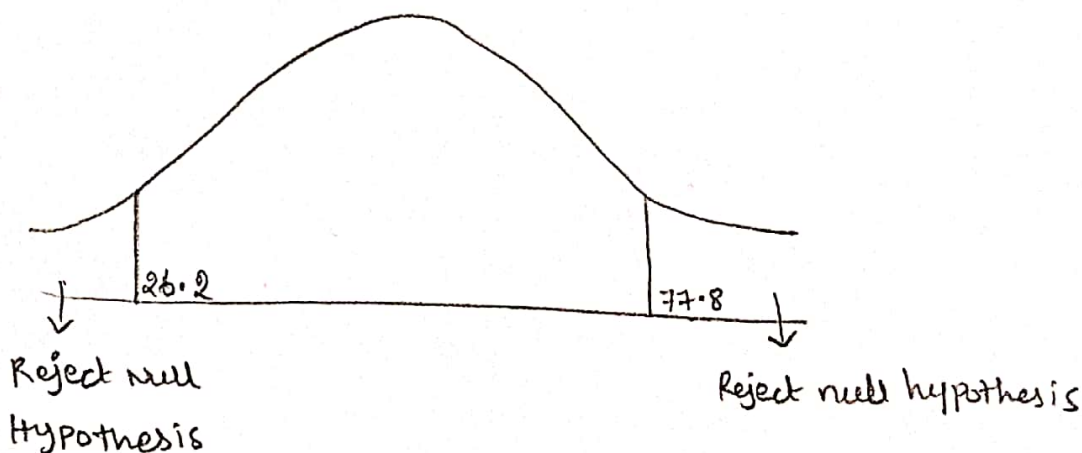
$$= 26.2 //$$

higher fence:-

$$= 520 + 1.29 \left(\frac{100}{\sqrt{25}} \right)$$

$$= 520 + \frac{129}{5}$$

$$= 77.8 //$$



Assignment:-

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

- State Null and alternate hypothesis
- At 10% significance level, is there enough evidence to support the idea that vehicle ownership in city ABC is 60% or less?

$$a) H_0: P_0 \leq 60\%$$

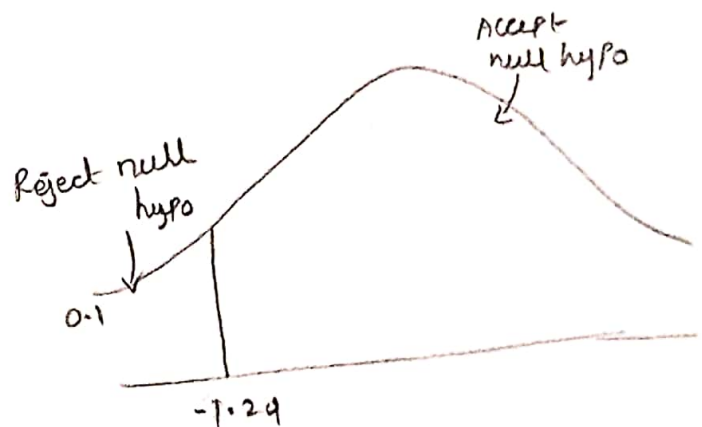
$$H_1: P_0 > 60\%$$

$$b) n = 250 \quad x = 170$$

$$\hat{p} = \frac{x}{n} = \frac{170}{250} = 0.68$$

$$\alpha_0 = 1 - P_0 = 1 - 0.6 = 0.4$$

$$\alpha = 0.1$$



Z test with Proportion

$$Z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0 q_0}{n}}} = \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}} = 2.582$$

$\therefore 2.582 > -1.29$ { ^{Reject} ~~Accept~~ null hypothesis }

④ 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

$$\frac{99}{100} \times (20+1) \Rightarrow \frac{99}{100} \times 21$$

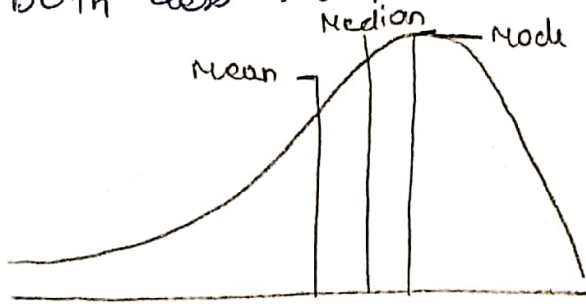
= 20 Index that is 12 //

⑤ In left and right - skewed data, what is the relationship between mean, Median and mode?

Draw the graph to represent the same

Left - Skew:-

Mean is less than the median, and they are both less than the Mode.



Right Skew:-

Mean is the largest while Median and Mode is the

Smallest

