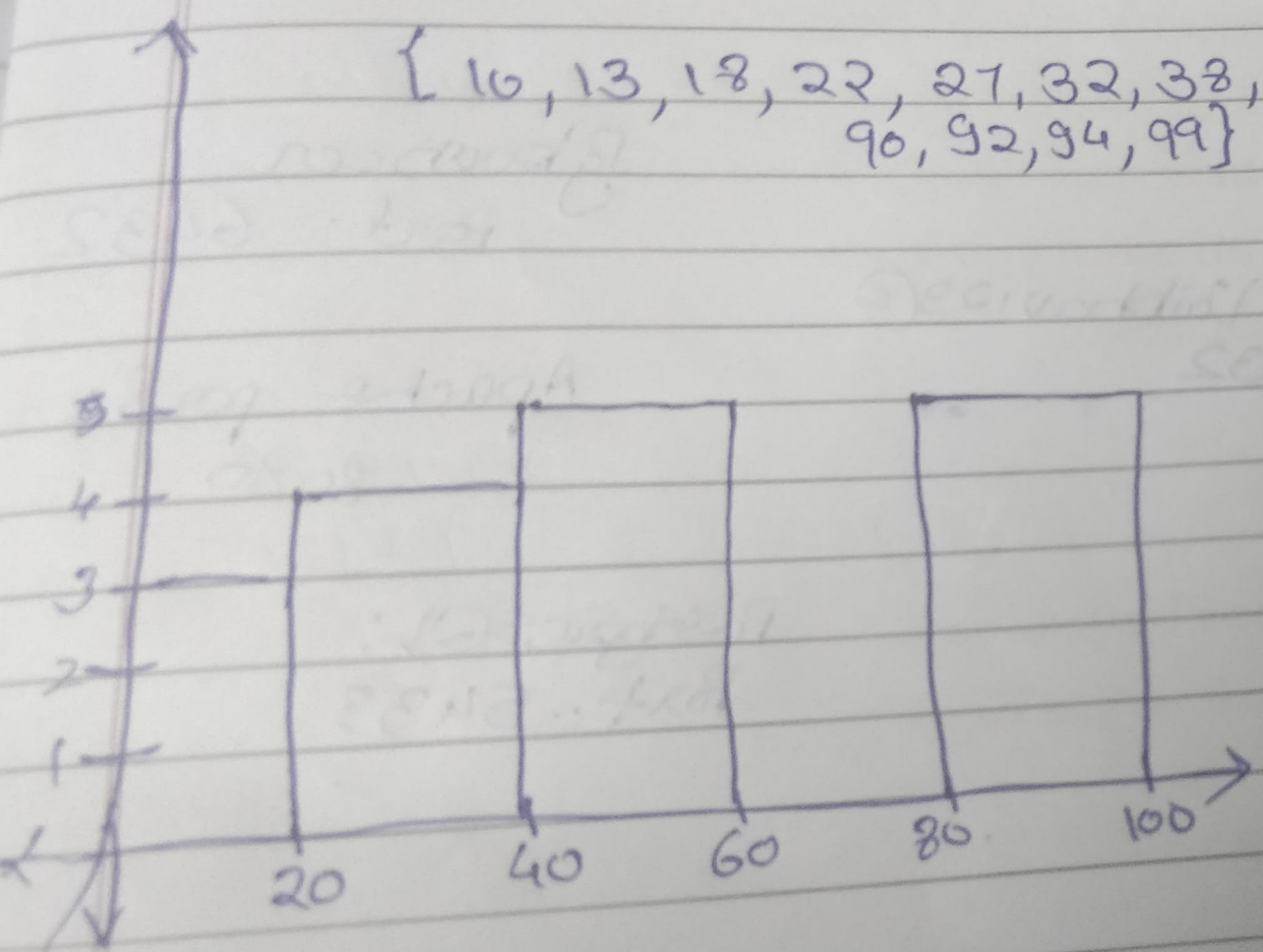
{ 10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88, 90, 92, 94, 99 }



Q. In a Quant test of CAT exam, the population standard deviation is known to be 100. A sample of 25 test takers has a mean of 520. Construct a 80% C.I. about mean?

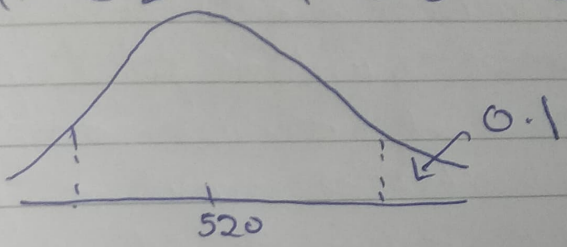
Ans:-

$\sigma = 100$

$n = 25$

$\bar{x} = 520$

$\alpha = 1 - C.I = 1 - 0.8 = 0.2$



$$\bar{x} \pm Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

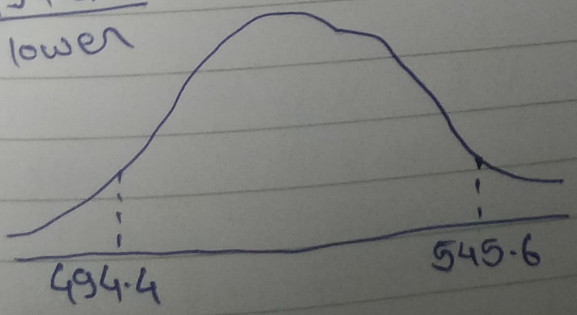
$$\Rightarrow 520 \pm Z_{0.1} \frac{100}{\sqrt{25}}$$

$$\Rightarrow 520 \pm Z_{0.1} \times 20$$

$$\Rightarrow 520 \pm 1.28 \times 20$$

$\Rightarrow$ 494.4 (lower)

545.6 (higher)



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

) State the null and alternate hy
At 10% significance level, is th enough evidence to support the ide that vehicle ownership in city is 60% or less.

* $P_0 = 60\%$

$P_1 \neq 60\%$

$n = 250$

$x = 170$

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

$$q_0 = 1 - p_0 = 1 - 0.6 = 0.4$$

Step 2:

$$\alpha = 0.1 \quad , \quad C.I = 0.9$$

Step 3:

Assignment
Date
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$$Z\text{-test} = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0 q_0}{n}}}$$

$$= \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}}$$

$$= \frac{0.08}{\sqrt{0.24/250}}$$

$$= \frac{0.08}{0.030}$$

$$= 2.67$$

p-value $(2.67) = 0.99492$

~~$0.994692 > 0.1$~~

~~p-value $< \alpha$~~

∴ ~~Reject the~~

$0.994692 > 0.1$

p-value $> \alpha$

∴ Accept the null hypothesis

Q. 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.

Soln:-

$$\text{Value} = \frac{99}{100} \times (n+1)$$

$$= \frac{99}{100} \times 21$$

$$= 20.79$$

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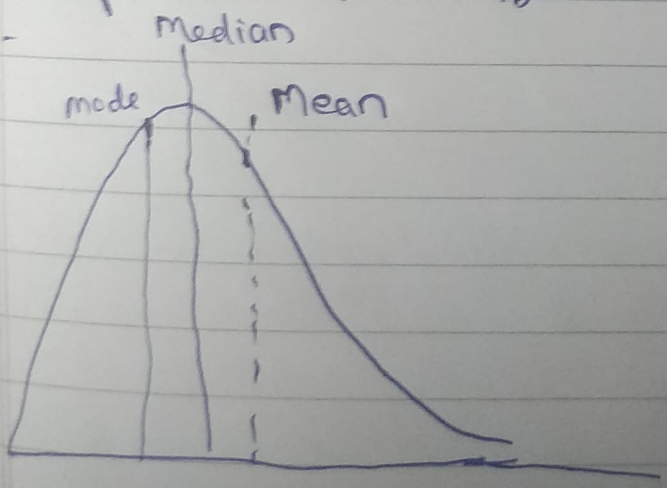
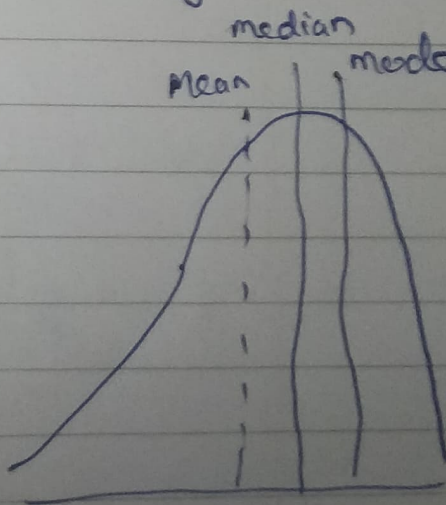
99% value = 12

Q. In left & right skewed data, what is the relationship between mean median & mode? Draw the graph to represent the same.

Soln:-





In ~~left~~ right skewed:

~~mod mode < median < mode~~

mode < median < mean

In left skewed:

mean < median < mode