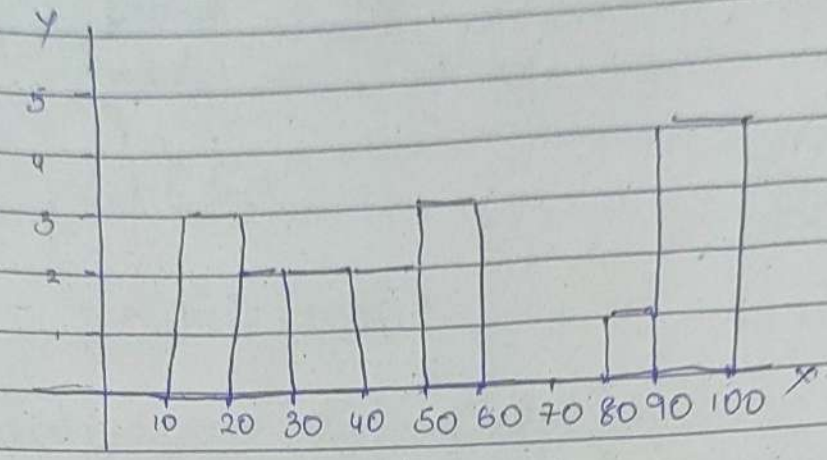
(1) Plot a histogram

10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 67, 88, 90, 92, 94, 99



(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

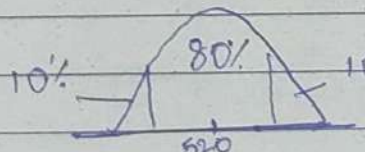
$$\text{Value} = \frac{\text{Percentile} \times (n+1)}{100}$$

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

$$= 20.79$$

Value = 12

(2) In the quant test, the populat" SD is known to be 100. A sample of 25 tests taken has a mean of 520. Construct an 80% CI about mean



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

$CI = PE \pm ME$

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

$1 - CI = 0.2$ $= 20\%$

$\frac{z_{0.2}}{2} = z_{0.1}$ $1 - 0.1 = 0.9$

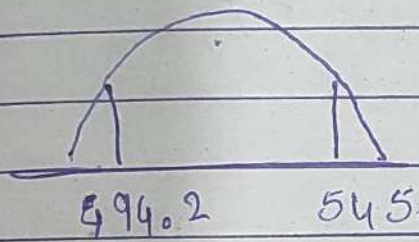
$= 520 \pm 1.29 \left(\frac{100}{5}\right)$

$LF = 520 - 1.29(20)$

$= 494.2$

$HF = 520 + 1.29(20)$

$= 545.8$



(3) A car owner believes that the percentage of citizen in city ABC that owns a vehicle is 60% or less. A sales manager disagrees with him the conducted a hypothesis testing survey 250 residents & that 170 residents responds yes to owning vehicle

a) state the null & alternate hypothesis

b) At a 10% significance level, is there a enough evidence to support the idea that vehicle owner in ABC city is 60% less

(one tail)

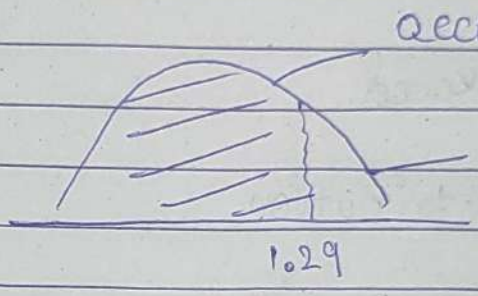
① Null Hypo $H_0 : P_0 \leq 60\%$
$H_1 : P_1 > 60\%$

$n = 250$
$x = 170$

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

$q_0 = 1 - P_0$
$= 1 - 0.6$
$= 0.4$

② $\lambda = 0.01$
$\alpha = 1 - CI$
$= 1 - .90$
$= 0.10$



③ $z\text{ test} = \frac{\hat{P} - P_0}{\sqrt{\frac{P_0 q_0}{n}}}$

$= \frac{0.68 - 0.60}{\sqrt{\frac{0.60 \times 0.40}{250}}}$

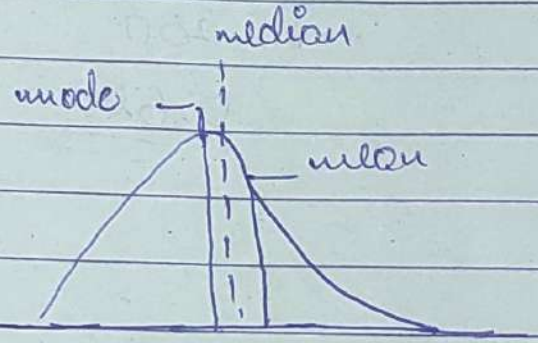
$= 2.58$

Null Hypo is rejected

$1 - 0.9951$
$= .0049$

P value < significance value
$0.0049 < 0.10$

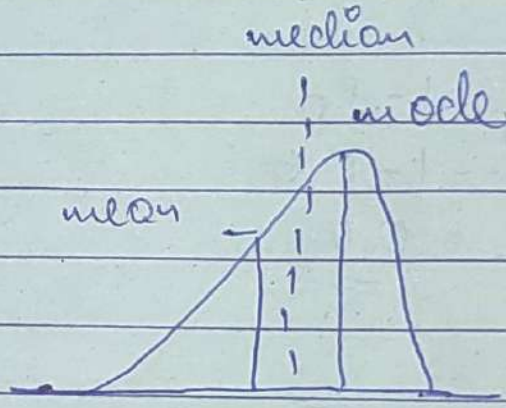
(5) In left and right skewed data, what is the relationship between mean, median & mode? Draw a graph to represent the same



Right skewed

- Wealth Distribution

mean > median > mode



left skewed

— Human life span

mode > median > me