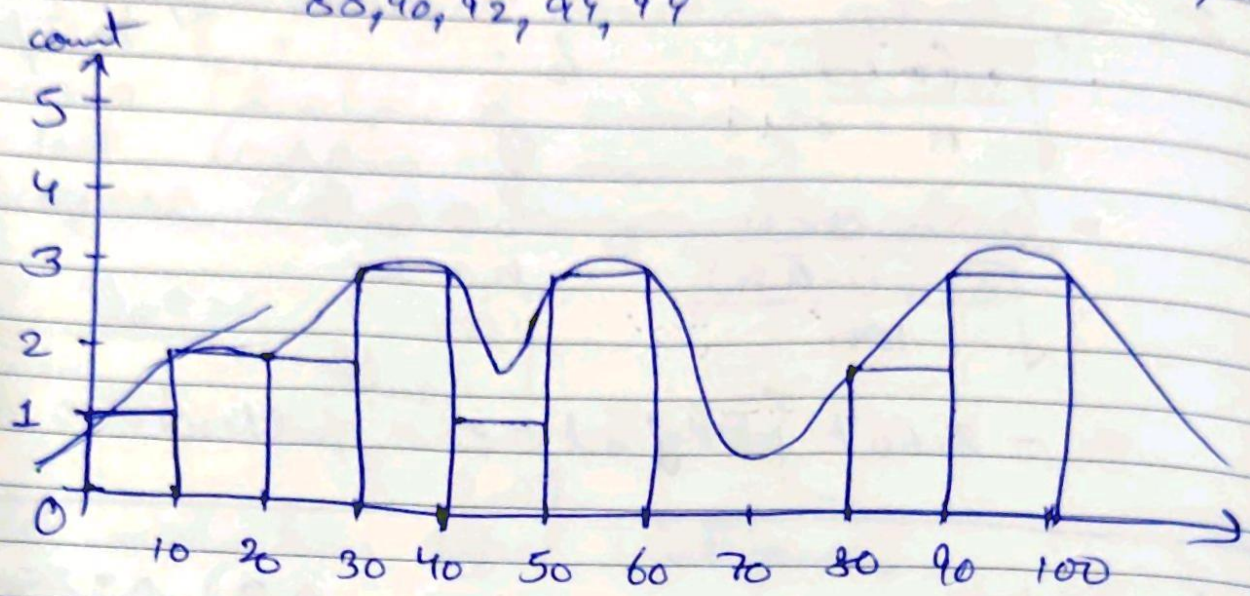
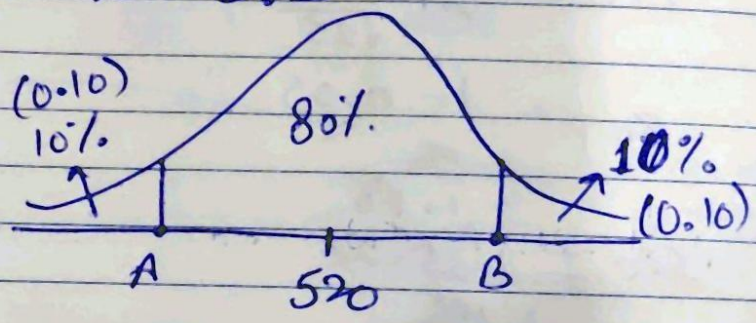
Ans 1) Dataset = 10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88, 90, 92, 94, 99

Bins = 10



Ans 2) $\sigma = 100$
$n = 25$
$\bar{x} = 520$
$\alpha = 0.2$



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

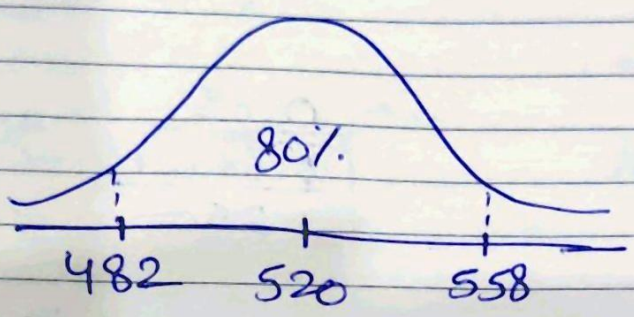
$$= 520 \pm Z_{0.2/2} \frac{100}{\sqrt{25}}$$

$$= 520 \pm Z_{0.1} \times 20$$
$$= 520 \pm 1.9 \times 20$$
$$= 520 \pm 38$$

$Z_{0.1} = 1 - 0.10$
$= 0.900$
i.e. value is 1.29

Upper limit (B) = $520 + 38$
= 558

lower limit (A) = $520 - 38$
= 482



3) $p_0 = 0.6$

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

$n = 250$

(a) {Null hypothesis} $H_0 \Rightarrow p = 0.6$

{Alternate hypothesis} $H_1 \Rightarrow p \neq 0.6$

(b) $\alpha = 0.1$

State Decision Rule,

Z score = $1 - 0.05$
= 0.950 i.e. value is 1.65

Compute z test,

$$Z_0 = \frac{\hat{P} - P_0}{\sqrt{\frac{P_0(1-P_0)}{n}}} = \frac{0.68 - 0.60}{\sqrt{\frac{0.60(1-0.60)}{250}}}$$

$$= \frac{0.08}{\sqrt{\frac{0.6 \times 0.4}{250}}} = \frac{0.08 \times 5}{\sqrt{\frac{0.24}{10}}}$$

$$= \frac{0.40}{0.15} = 2.66$$

Conclusion:- $2.66 \neq [-1.65 \text{ to } +1.65]$

then Reject the Null Hypothesis

Evidence of vehicle owner is Inaccurate

Ans 4) Dataset = 2, 2, 3, 4, 5, 5, 5, 6, 7, 8, 8, 8, 8, 8, 9, 9, 10, 11, 11, 12

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

= 20.79 Index

But in this only 20 Index is present so

[99% of entire distribution is less than the value 12]

SEPTEMBER '22

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

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2022

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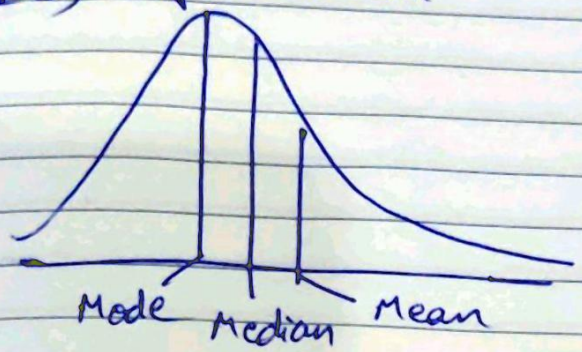
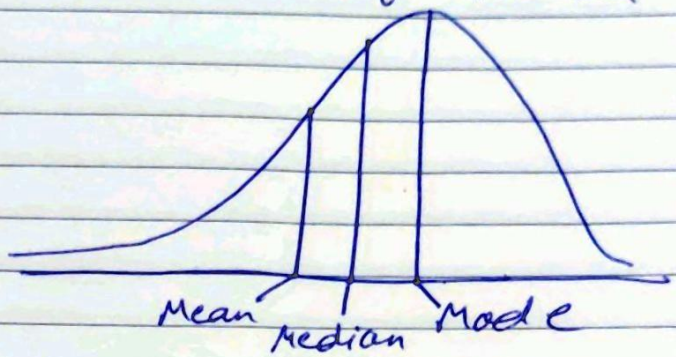
Ans 5) Right skewed



Mean > Median > Mode

Left skewed



Mean < Median < Mode