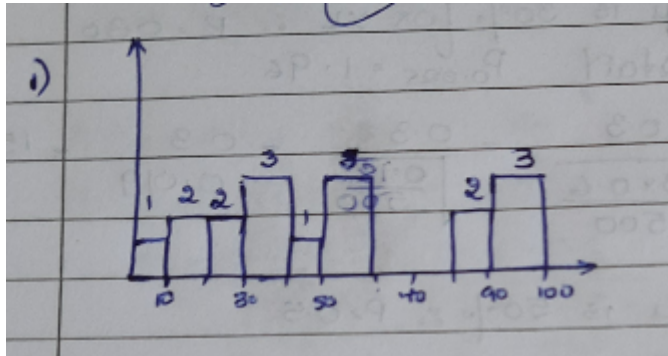
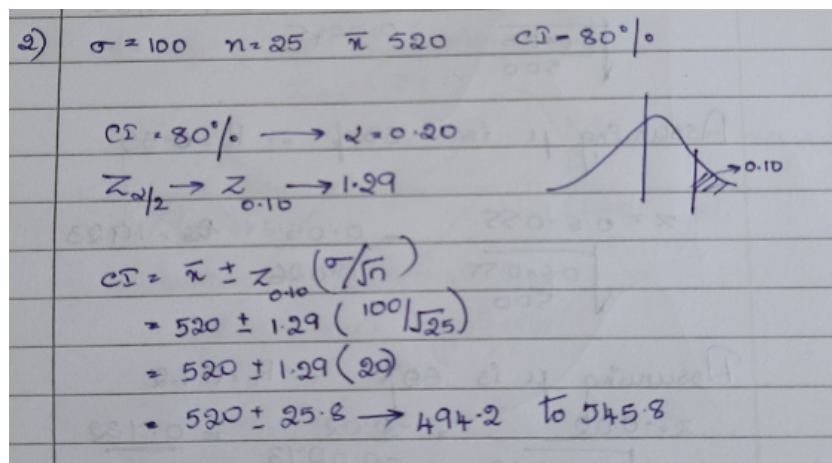


Que 1) Plot a histogram,

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

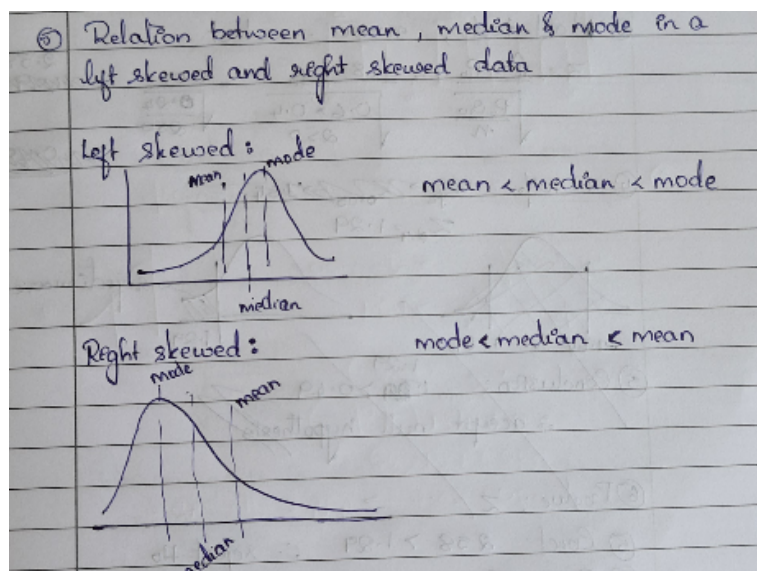


Que 2) In a quant test of the CAT Exam, the population standard deviation is known to be 100. A sample of 25 tests taken has a mean of 520. Construct an 80% CI about the mean.



Que 5) In left & right-skewed data, what is the relationship between mean, median & mode?

Draw the graph to represent the same.



Que 4) What is the value of the 99 percentile?

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

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

$$99\% \text{ value} = \frac{99}{100} (n+1) = \frac{99}{100} \times 21 = 20.79$$

$\therefore 12$

Que 3) 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.

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

③ $\mu = 60$ $n = 250$ $y = 170$ $\alpha = 10\%$

① $H_0: p \leq 60$ $\hat{p} = \frac{170}{250} = 0.68$
 $H_1: p > 60$

② $\alpha = 10\% \therefore 0.10$

③ $\hat{p} > p_0$ $n > 30 \therefore z \text{ test}$

$$z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}} = \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}} = \frac{0.08}{\sqrt{0.00096}} = \frac{0.08}{0.031} = 2.58$$

④ $\alpha = 10\%$ $z_{\alpha} = 1.29$

⑤ Conclusion: $2.58 > 1.29 \therefore \text{reject } H_0$

⑥ P-value: z

⑦ Concl: $2.58 > 1.29 \therefore \text{reject } H_0$

⑧ $P: z_{\text{acc}} = 0.0096$ $P = 0.0096$

$\therefore z = 0.0494$ $P = 0.1988$

$0.1988 > \frac{\alpha}{100} \therefore \text{reject } H_0$