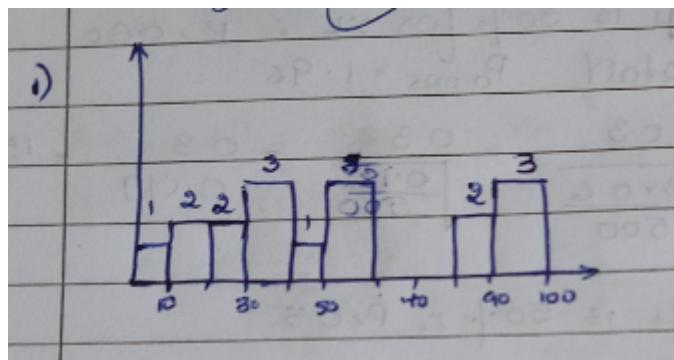
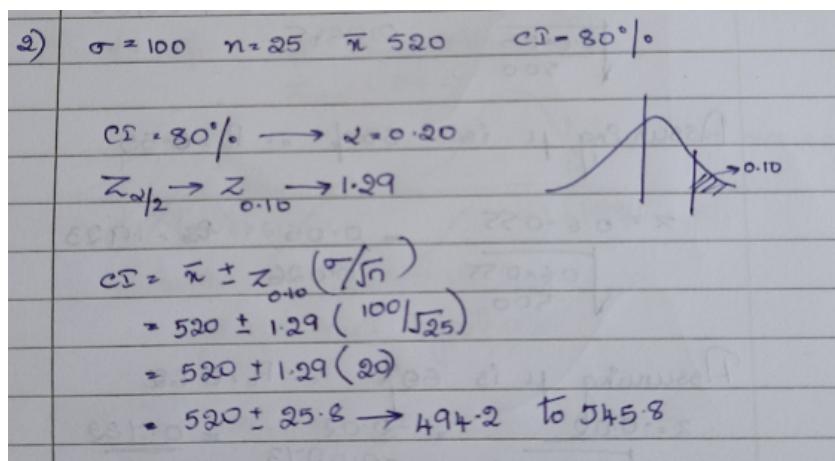


Que 1) Plot a histogram,

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

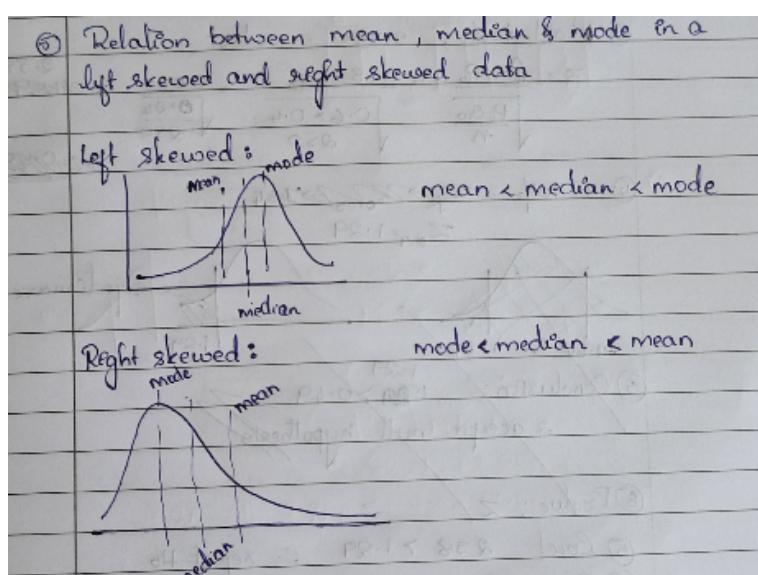


Que 2) In a quant test of the CAT Exam, the population standard deviation is known to be 100. A sample of 25 tests taken has a mean of 520. Construct an 80% CI about the mean.



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

Draw the graph to represent the same.



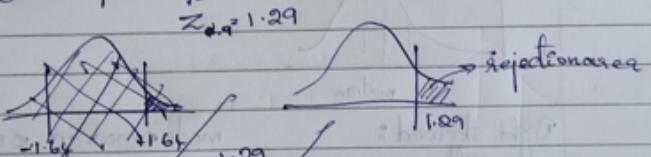
Que 4) What is the value of the 99 percentile?

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% value = $\frac{99}{100} (n+1) = \frac{99}{100} \times 81 = 20.49$<br>∴ <u>21</u> |

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.

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

|   |   |
|---|---|
| ③ | $\mu = 60$ $n = 250$ $y_{05} = 170$ $\alpha = 10\%$   |
| ① | $H_0: p \leq 0.60$ $\hat{p} = \frac{170}{250} = 0.68$<br>$H_1: p > 0.60$  |
| ② | $\hat{p}_{0.05} = 0.40 \therefore 0.44$   |
| ③ | z-test, $n > 30 \therefore z$ -test<br>$z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}} = \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}} = \frac{0.08}{\sqrt{0.0096}} = 2.58$ |
| ④ | $\alpha = 10\%$ $Z_{0.10} = 1.29$   |
| ⑤ | <br>Conclusion: $1.29 > 0.44$<br>$\therefore$ accept null hypothesis                                   |
| ⑥ | Probability: $Z$  |
| ⑦ | Crit: $Z_{0.10} = 1.29 \therefore$ reject $H_0$   |
| ⑧ | $P: Z_{\text{asc}} = \text{area on right}$ <u><math>P = 0.1988</math></u><br>$\therefore 0.0494 \quad P = 0.1988$   |
|   | $0.1988 > \frac{1}{10}\alpha \therefore$ reject $H_0$   |