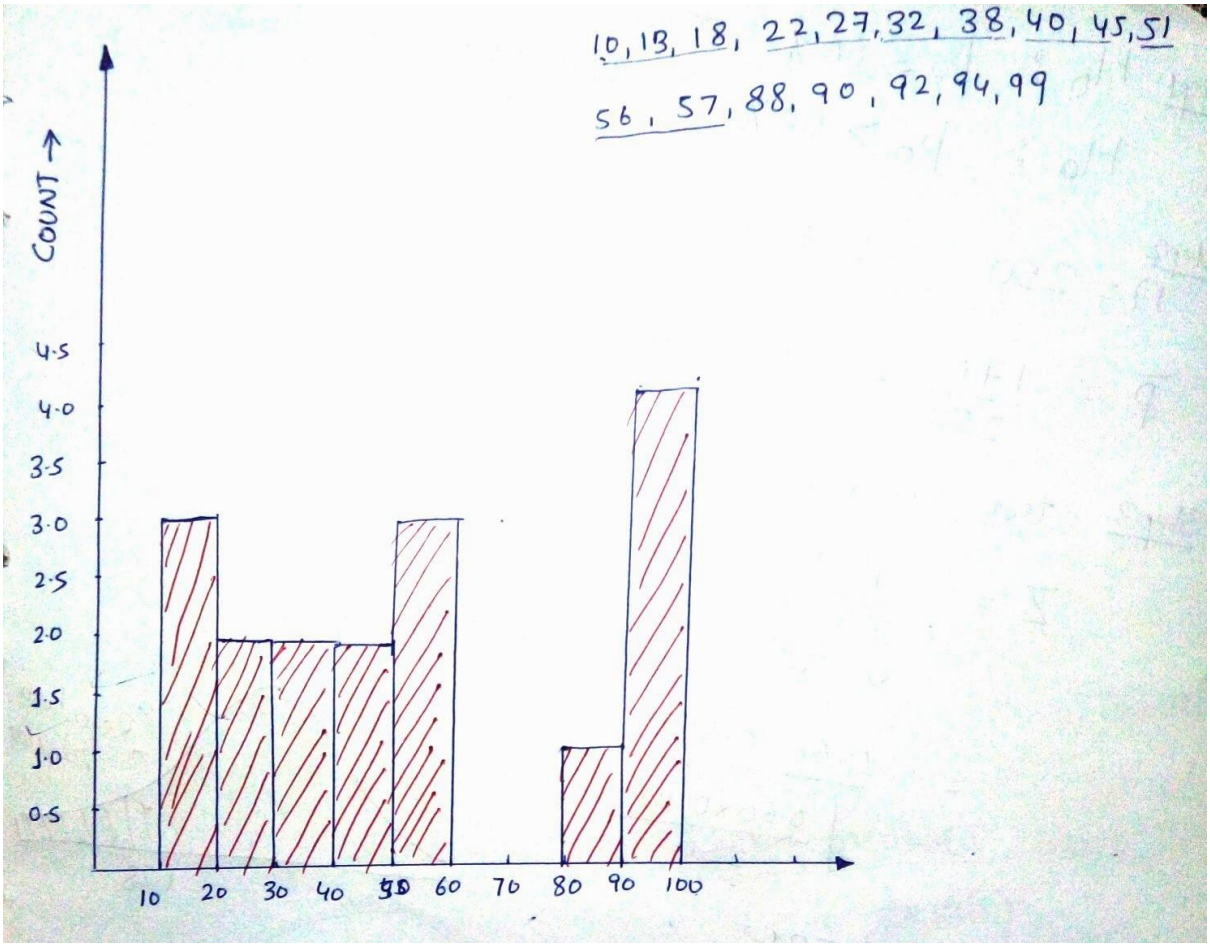
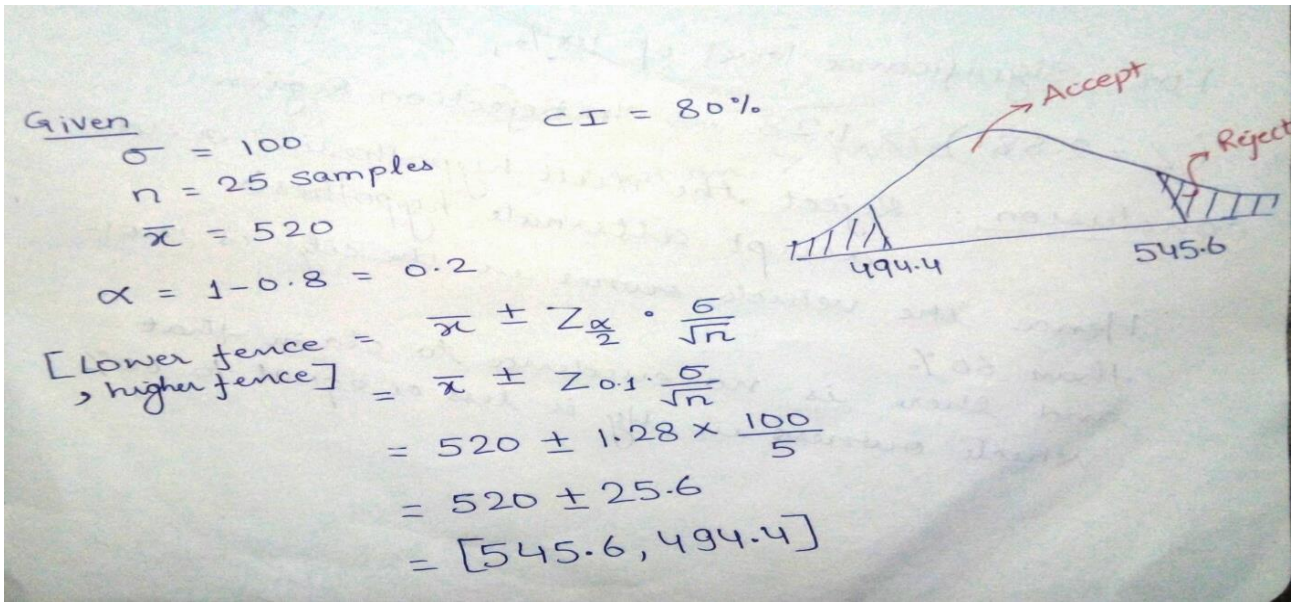
ASSIGNMENT-STATISTICS

1. **Plot a histogram**

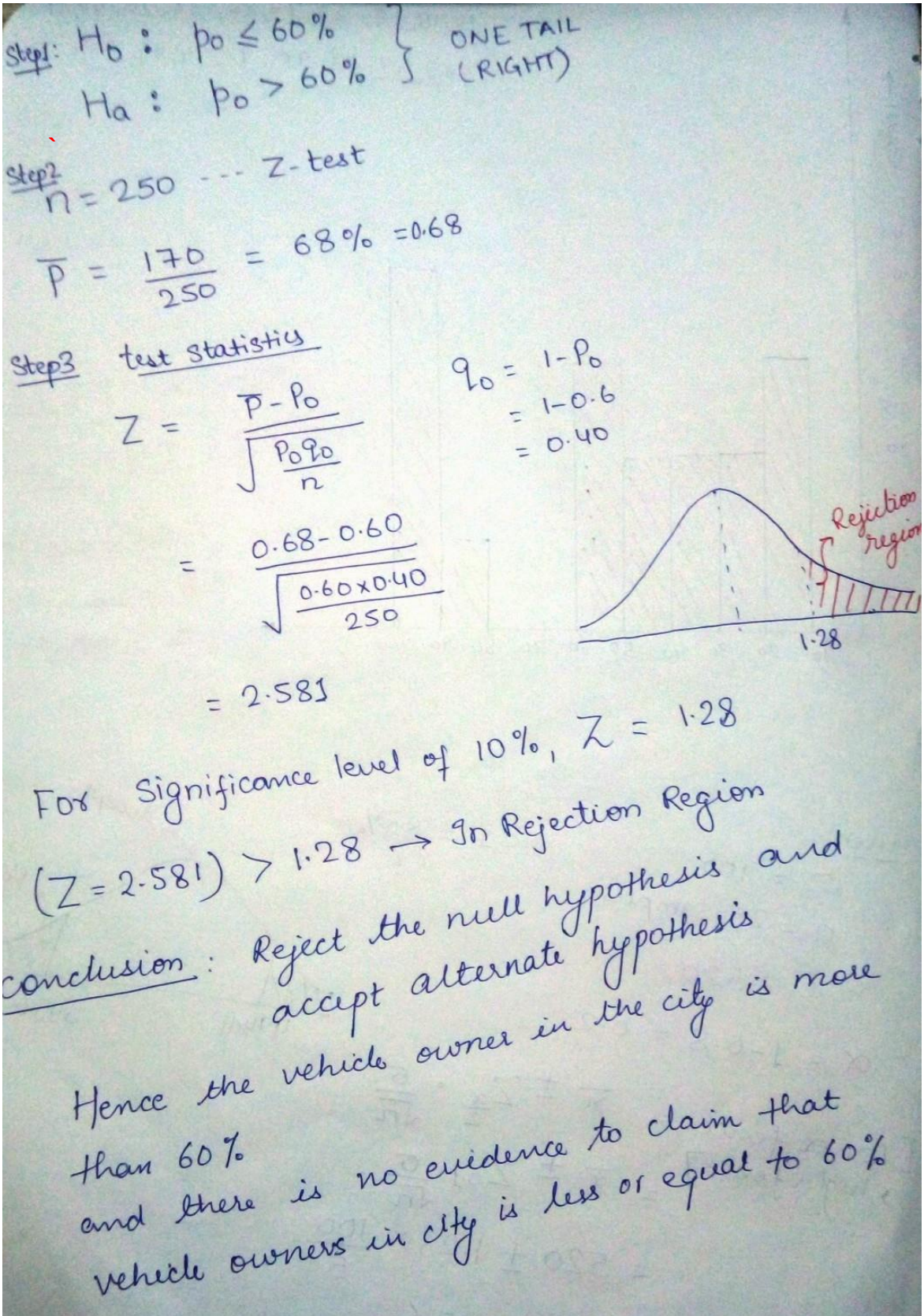
   10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88, 90, 92, 94, 99



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.**



3. **A car company 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.**



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

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

$n = 20$

99^{th} percentile $= (n+1) \times \frac{99}{100}$

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

$= 20.79$

$= 21^{st}$ index (~~take~~ 20^{th} index)

99^{th} percentile = 12

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

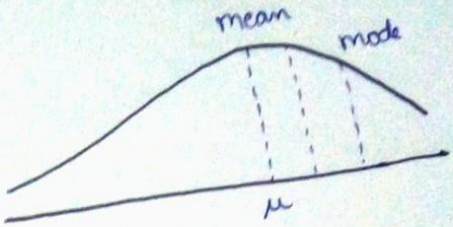
LEFT SKEWED

eg: 1, 2, 3, 3, 3, 4, 4, 4, 4, 5

mean = 3.3

median = 3.5

mode = 4



Relation : mode > Median > Mean

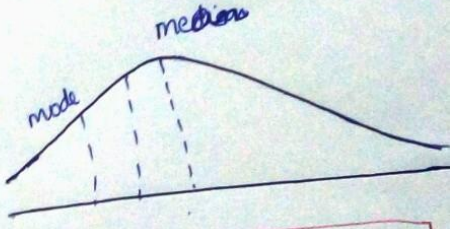
RIGHT SKEWED

eg: 1, 2, 2, 2, 2, 3, 3, 3, 4, 5

mean = 2.7

median = 2.5

mode = 2



Relation : Mean > Median > Mode