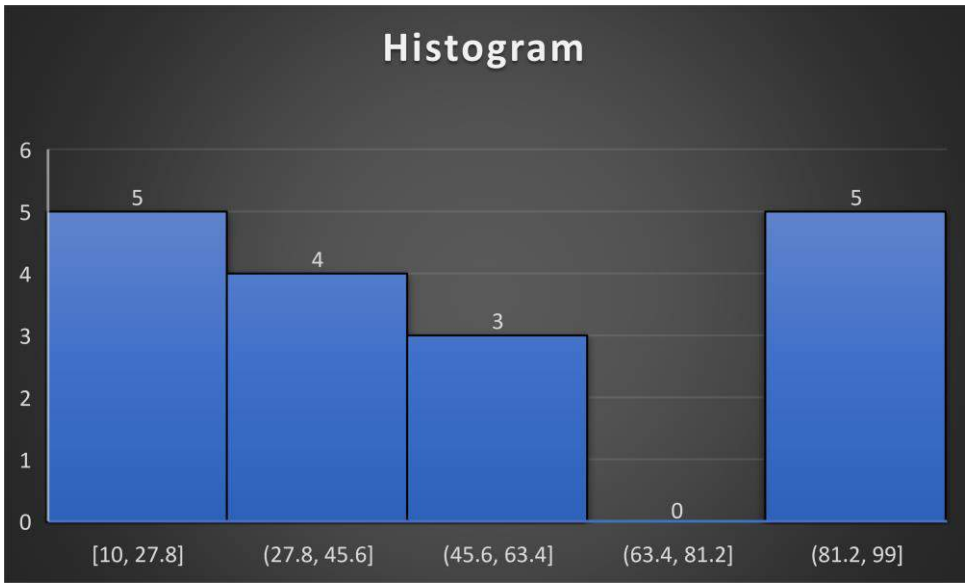
Que 1) Plot a histogram,

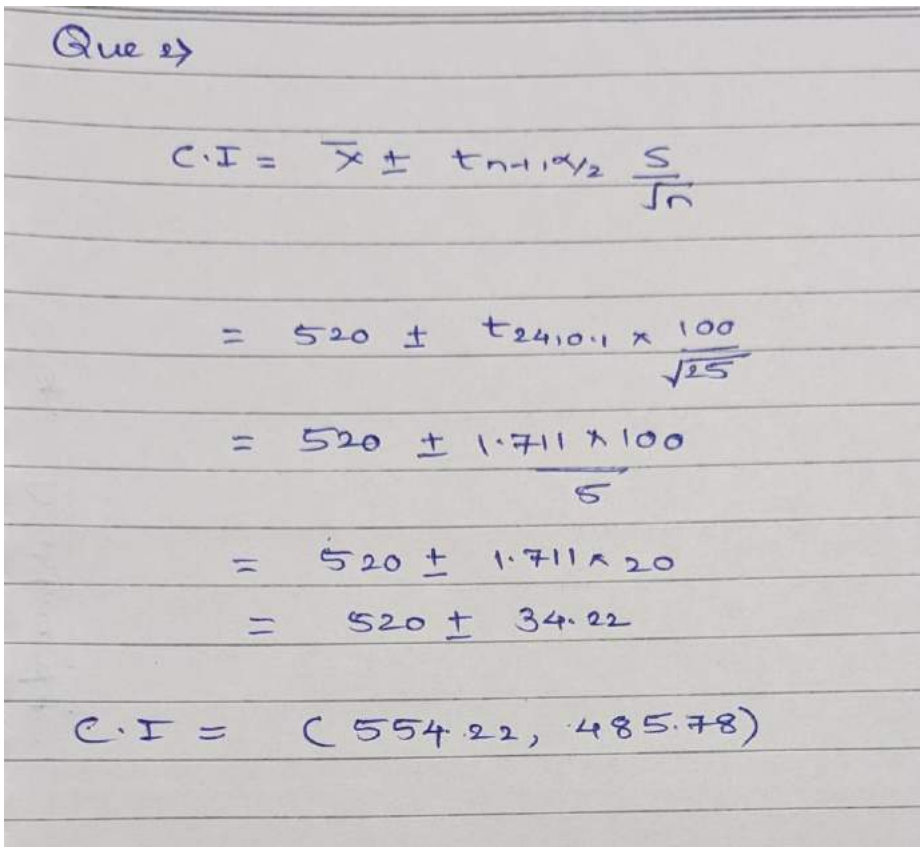
10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88, 90, 92, 94, 99

Ans=>



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.

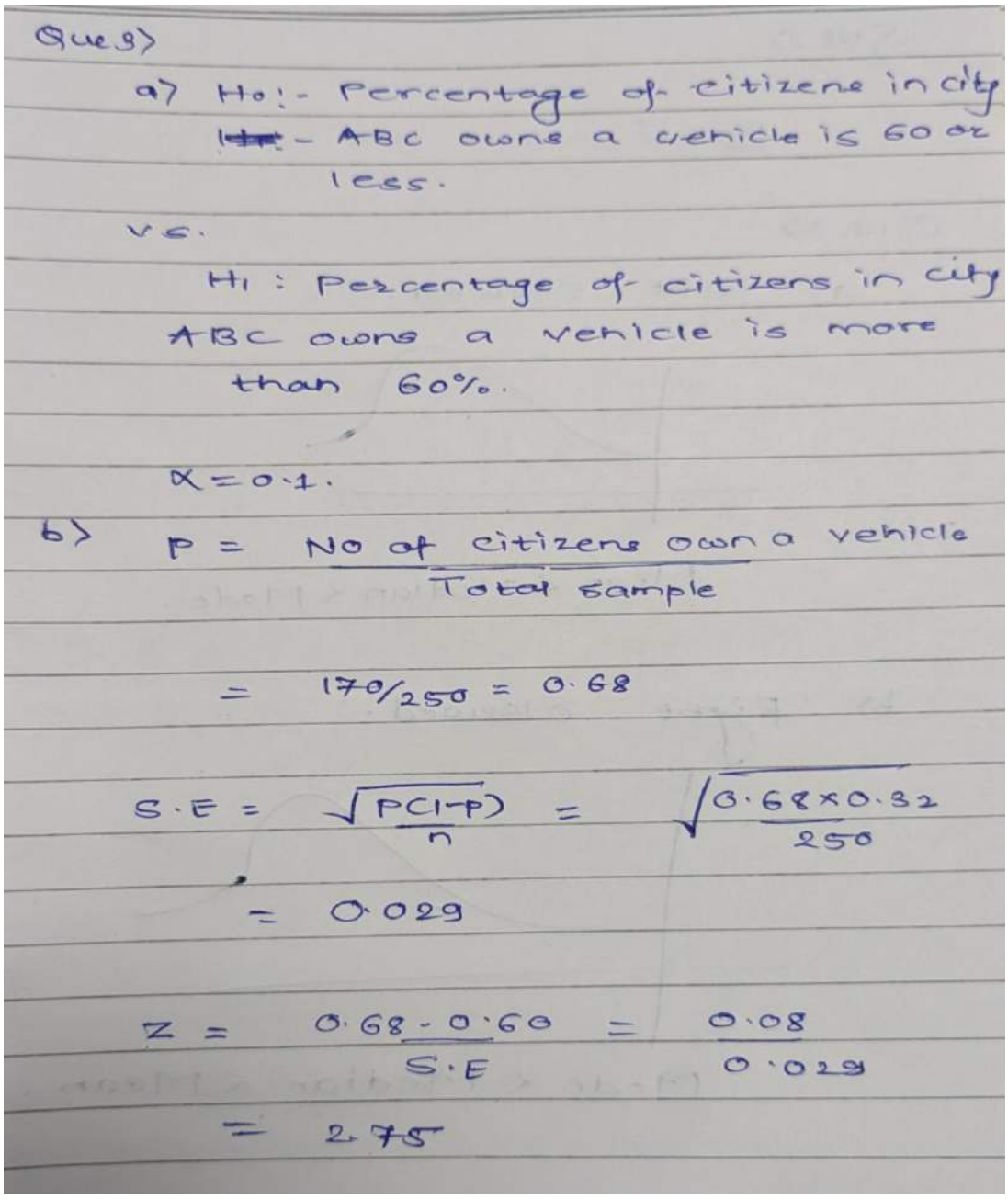
Ans=>



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.

Ans=>



Que 3)

a) H_0 :- Percentage of citizens in city ABC owns a vehicle is 60 or less.

vs.

H_1 : Percentage of citizens in city ABC owns a vehicle is more than 60%.

$\alpha = 0.1$.

b) $P = \frac{\text{No of citizens own a vehicle}}{\text{Total sample}}$

$= 170/250 = 0.68$

$S.E = \sqrt{\frac{P(1-P)}{n}} = \sqrt{\frac{0.68 \times 0.32}{250}}$

$= 0.029$

$Z = \frac{0.68 - 0.60}{S.E} = \frac{0.08}{0.029}$

$= 2.75$

For 10% significance ($\alpha = 0.10$)
Z value is approx. 1.28.

$Z_{cal} > Z_{tab}$.

we Reject Null Hypothesis.

Hence, there is enough evidance to say that the percentage of citizens in city ABC owns a vehicle is more than 60%.

Que 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

Ans=>

Que 4)

$$\text{Position} = \left(\frac{\text{Percentile}}{100}\right)(N+1)$$

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

$$= 20.71$$

Value is $\boxed{12}$

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

Draw the graph to represent the same.

Ans=>