Assignment 2 :

2Q : Maximum likelihood Estimation (MLE) for Θ.

we are given a normal distribution

$$f(x) = \frac{1}{\sqrt{8\pi}} e^{-\frac{(x-\Theta)^2}{8}}$$

The given Expression values :

$$x_1 = 10, \quad x_2 = 13 \quad x_3 = 15 \quad x_4 = 20.$$

MLE formula

MLE for Θ in normal distribution when variance (σ^2) is

$$\hat{\Theta} = \frac{\Sigma x_i}{N}$$

where

x_i = given values

N = number of observations.

Computing Θ manually :

Substituting the given values :

$$\hat{\Theta} = \frac{10+13+15+20}{4}$$

$$\hat{\Theta} = \frac{58}{4}$$

$$\hat{\Theta} = 14.5$$

MLE Estimate of $\Theta = 14.5$