

Q2

In a series of $2n$ observations, half of them equals a and remaining half equals $-a$. If standard dev is 2 . then $|a|$?

$$\text{Mean} = \frac{n \times (a) + n(-a)}{2n} = 0$$

$$\begin{aligned} \sum b_i x_i^2 &= n(a)^2 + n(-a)^2 \\ &= 2na^2 \end{aligned}$$

$$\sigma = \sqrt{\frac{2na^2}{2n} - 0}$$

$$2 = \sqrt{2a^2}$$

$$|a| = \sqrt{2}$$

$$\sigma^2 = \frac{\sum b_i x_i^2}{\sum b_i} - \left(\frac{\sum b_i x_i}{\sum b_i} \right)^2$$

Difficulty - Easy