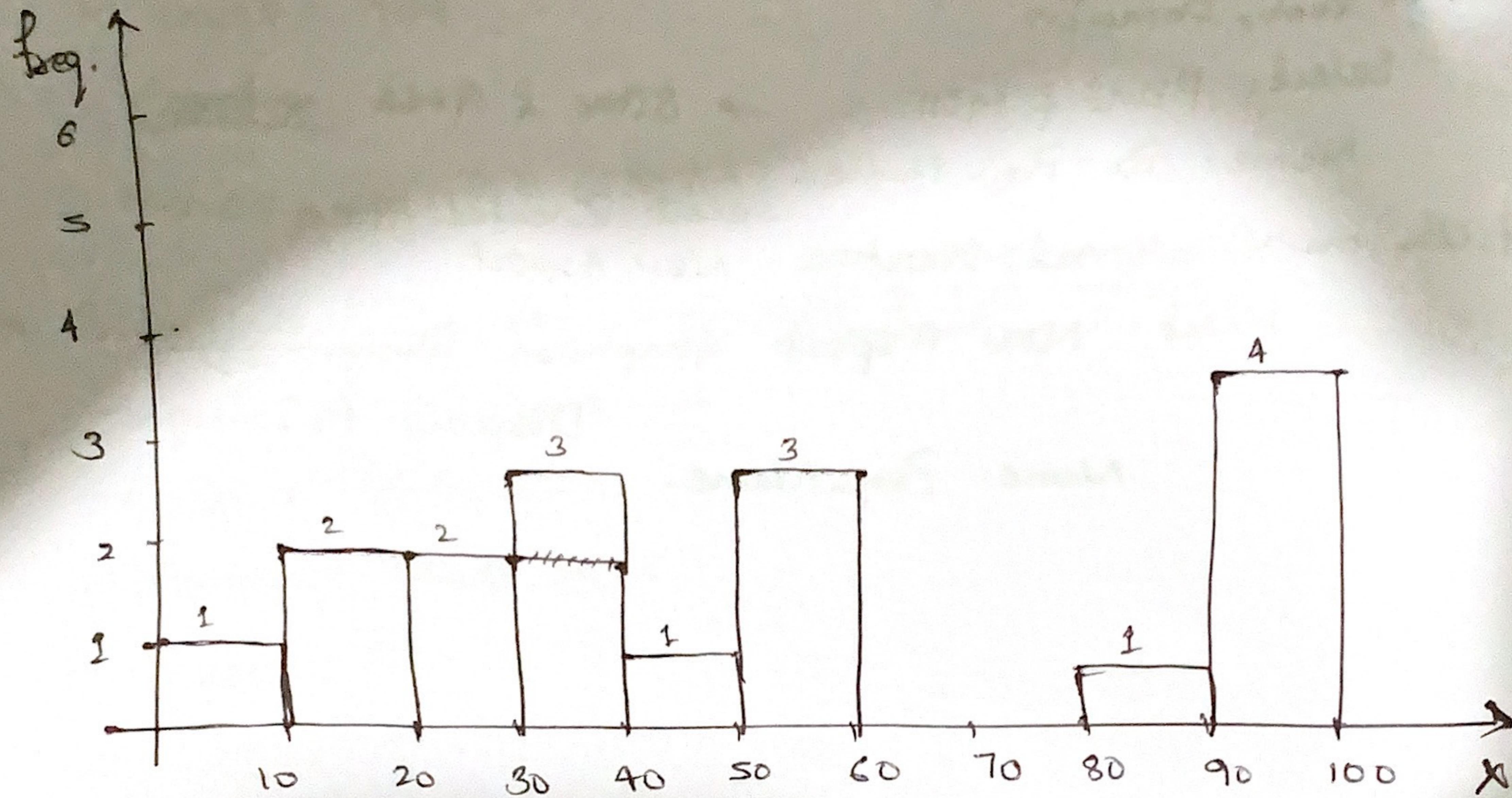
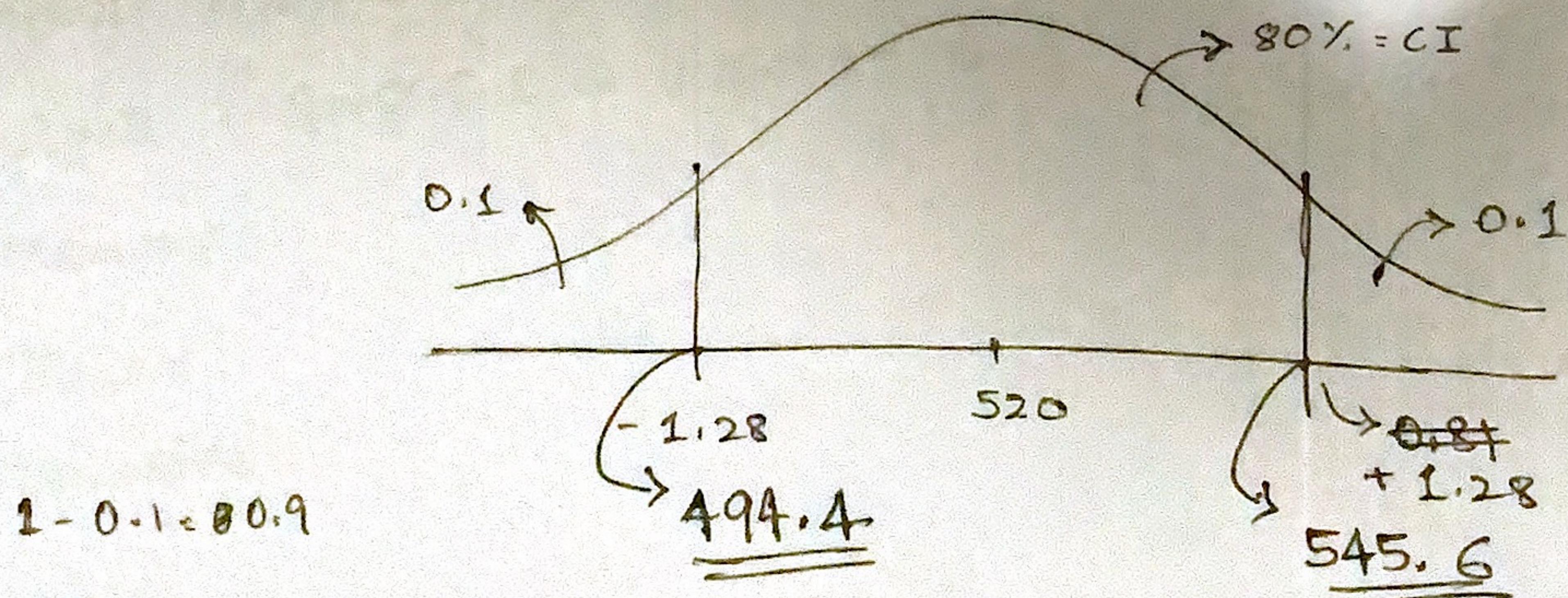


State Assignment Solutions.

Q1. $x = \{10, 13, 18, 22, 27, 32, 38, 40, 45, 51, 56, 57, 88, 90, 92, 94, 99\}$



Q2. Given: $\sigma = 100$ $n = 25$ $\bar{x} = 520$ CI = 80%
 $\alpha = 1 - 0.8 = 0.2$



$$Z_{0.1} = 1.28$$

$$\text{Lower fence} = \bar{x} - Z_{0.1} \left(\frac{\sigma}{\sqrt{n}} \right)$$

$$= 520 - 1.28 \left(\frac{100}{\sqrt{25}} \right)$$

$$= 520 - 1.28 \left(\frac{100}{5} \right)$$

$$= 520 - 1.28 \times 20$$

$$= 520 - 25.6$$

$$= \underline{\underline{494.4}}$$

$$\text{High fence} = \bar{x} + Z_{0.1} \left(\frac{\sigma}{\sqrt{n}} \right)$$

$$= 520 + 1.28 \left(\frac{100}{\sqrt{25}} \right)$$

$$= 520 + 1.28 \left(\frac{100}{5} \right)$$

$$= 520 + 1.28 \times 20$$

$$= \underline{\underline{545.6}}$$

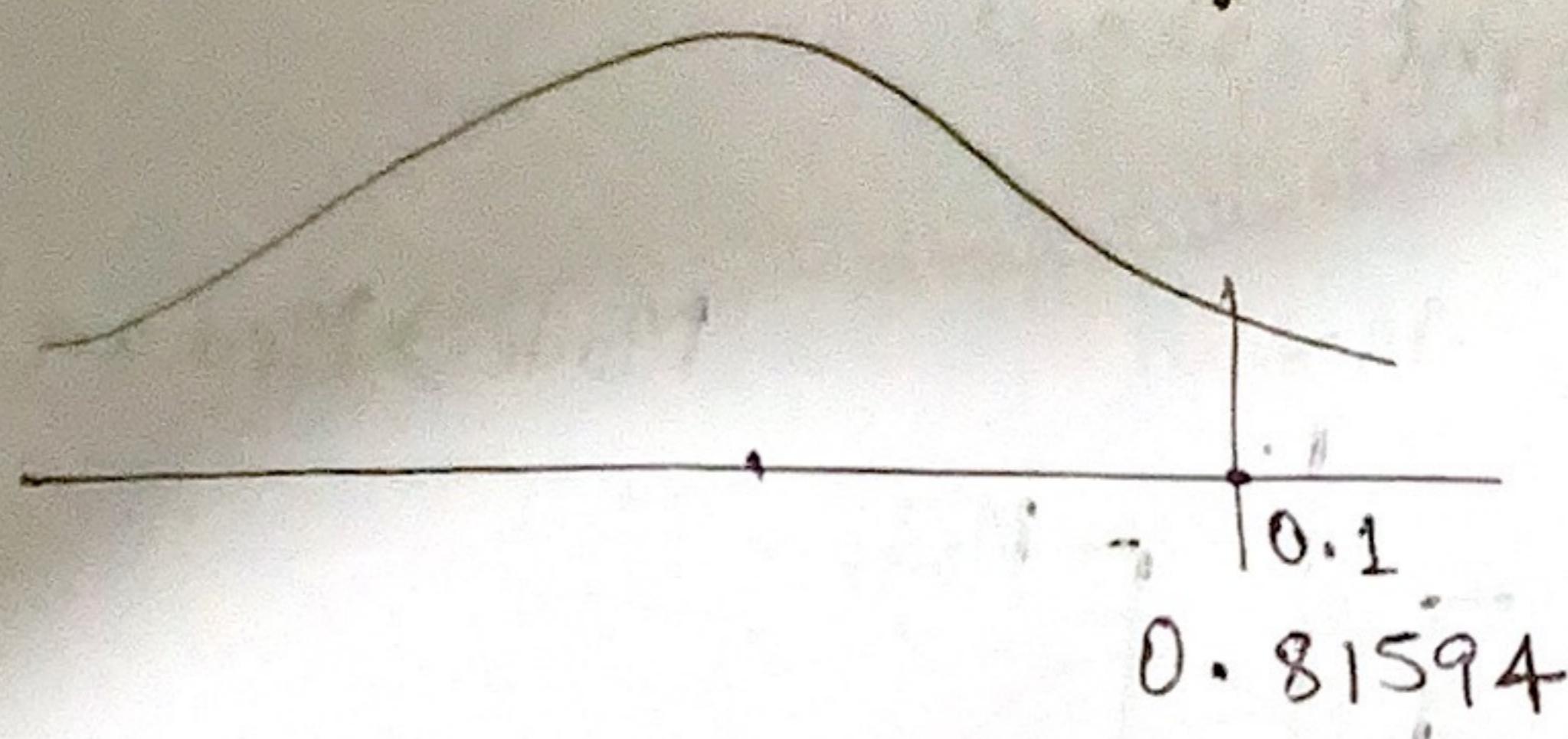
Q3. Given: $n = 250$ $x = 170$ $\alpha = 0.1$

$H_0: P_0 \leq 60\%$

$P_0 \rightarrow P_0 > 60\%$.

$$q_0 = 1 - p_0 \\ = 0.4$$

$$\hat{P} = \frac{x}{n} = \frac{170}{250} = 0.68$$



$$Z_{\text{test}} = \frac{\hat{P} - P_0}{\sqrt{\frac{P_0 q_0}{n}}} = \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}} = \frac{0.08}{0.0309} \\ = 2.58$$

$$2.58 > 0.81594$$

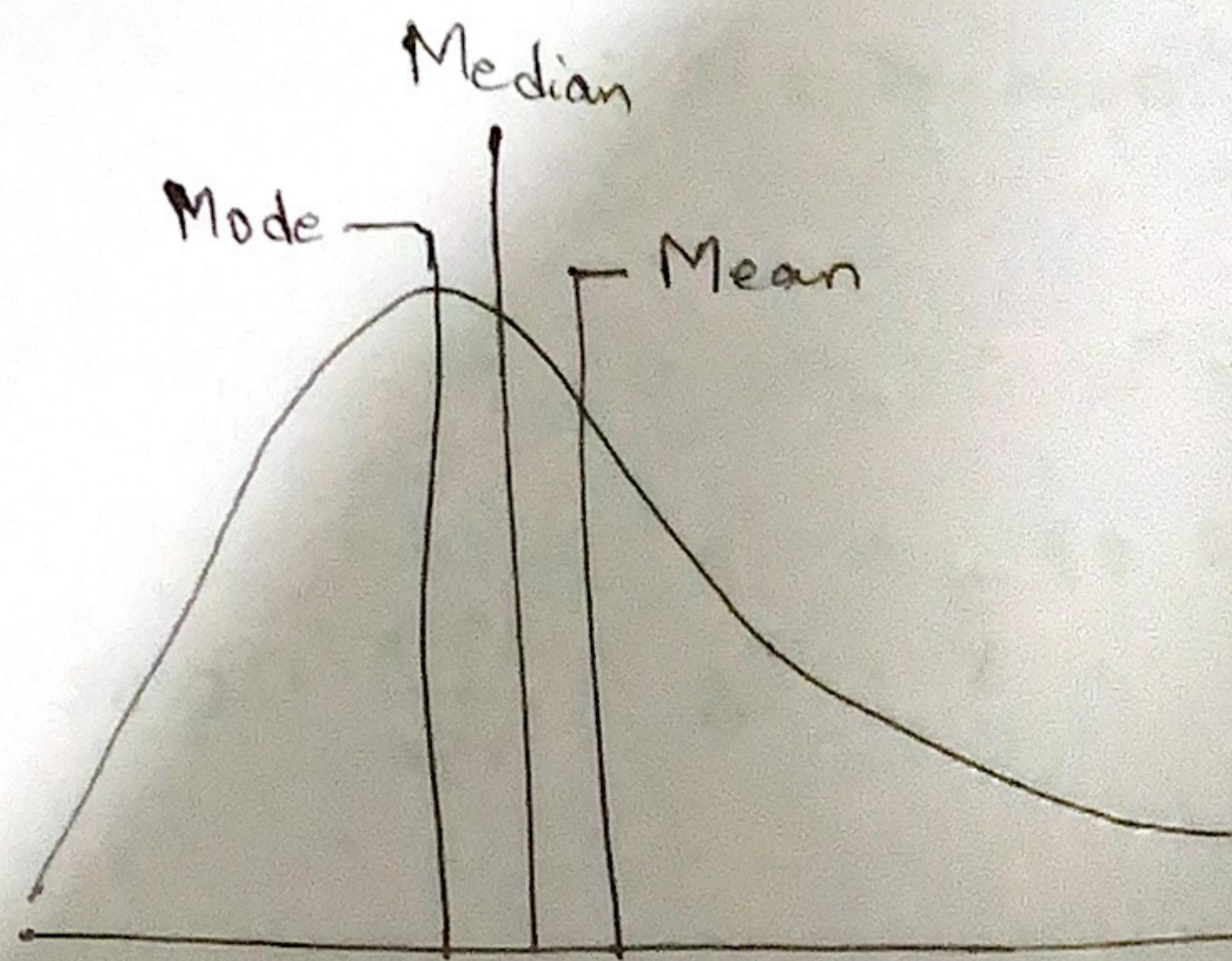
\therefore Reject the null hypothesis.

Q4. $X = \{2, 2, 3, 4, 5, 5, 5, 6, 7, 8, 8, 8, 8, 8, 9, 9, 10, 11, 11, 12\}$
 $n = 20$

$$\text{Value} = \frac{\text{Percentile}}{100} \times n = \frac{99}{100} \times 20 \\ = 19.8 \Rightarrow \text{Index.}$$

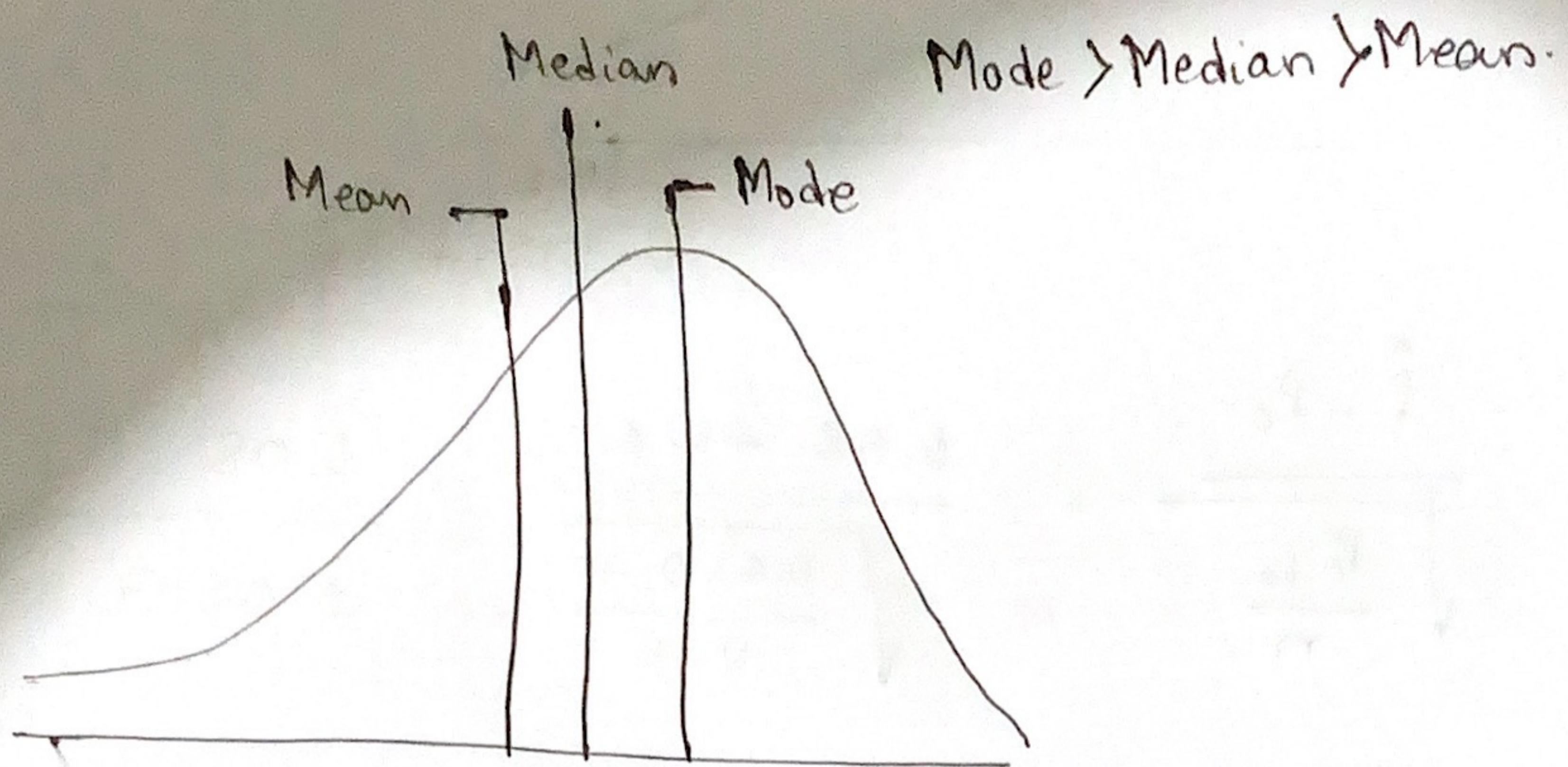
$$\text{Avg. of } 19^{\text{th}} \text{ & } 20^{\text{th}} \text{ Index} = 11 + 12 / 2 \\ = 11.5.$$

Q5.



Mean > Median > Mode

Right Skew



Mode > Median > Mean.