Assignment Section - B

① $X = \{1, 2, 2, 2, 3, 3, 4, 5, 5, 6, 6, 6, 6, 7, 8, 8, 9\}$

Find 25th and 75th percentile

(a) 25th percentile $= \frac{25}{100} \times (n+1)$

$= \frac{25}{100} \times 18$ 4.5 Index

$= 2+3/2 = 2.5$

(b) 75th percentile $= \frac{75}{100} \times 18$ 4.5

$= 13.5$ Index

$= \frac{6+7}{2} = \frac{13}{2} = 6.5$

(2) $x = \{1, 2, 3, 4, 5\}$

Find the variance and standard deviation of the sample.

x	$\bar{x}$	$(x - \bar{x})$	$(x - \bar{x})^2$
1	3	(-2)	4
2	3	(-1)	1
3	3	(0)	0
4	3	1	1
5	3	2	4
			10

Sample variance $(S^2) = \sum_{i=1}^{n} \frac{(x - \bar{x})^2}{(n-1)}$

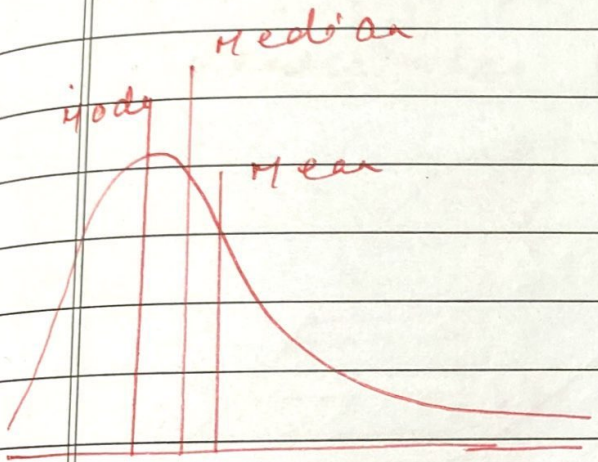
$= \frac{10}{4} = 2.5$

Sample standard deviation $(S) = \sqrt{S^2}$

$= \sqrt{2.5}$

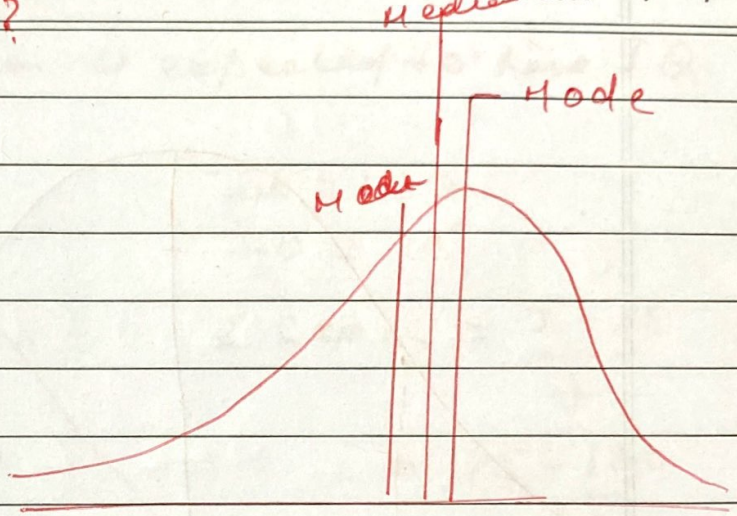
$= 1.58$

Q- Consider a left skewed and Right skewed graph. What is the relation between mean, median, mode of these distributions?



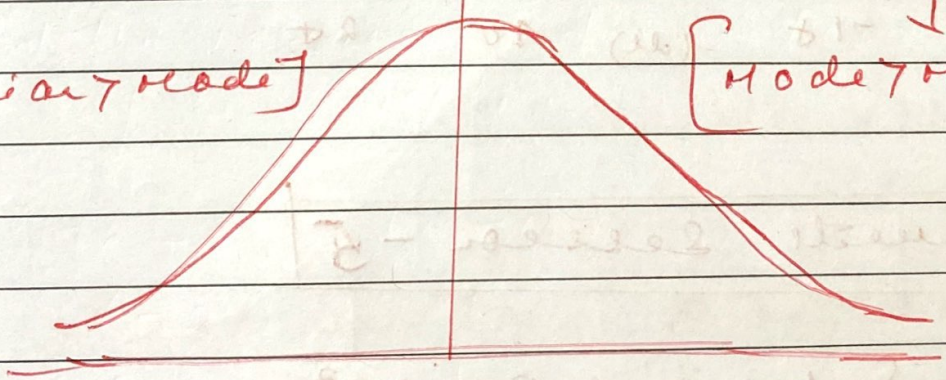
RIGHT SKEWED

[Mean > Median > Mode]



LEFT SKEWED

[Mode > Median > Mean]



SYMMETRICAL DISTRIBUTION

[Mean = Median = Mode]