TILAK COLLEGE OF EDUCATION PUNE-30

BED 104
Assessment and Evaluation for Learning

GRAPHICAL REPRESENTATION

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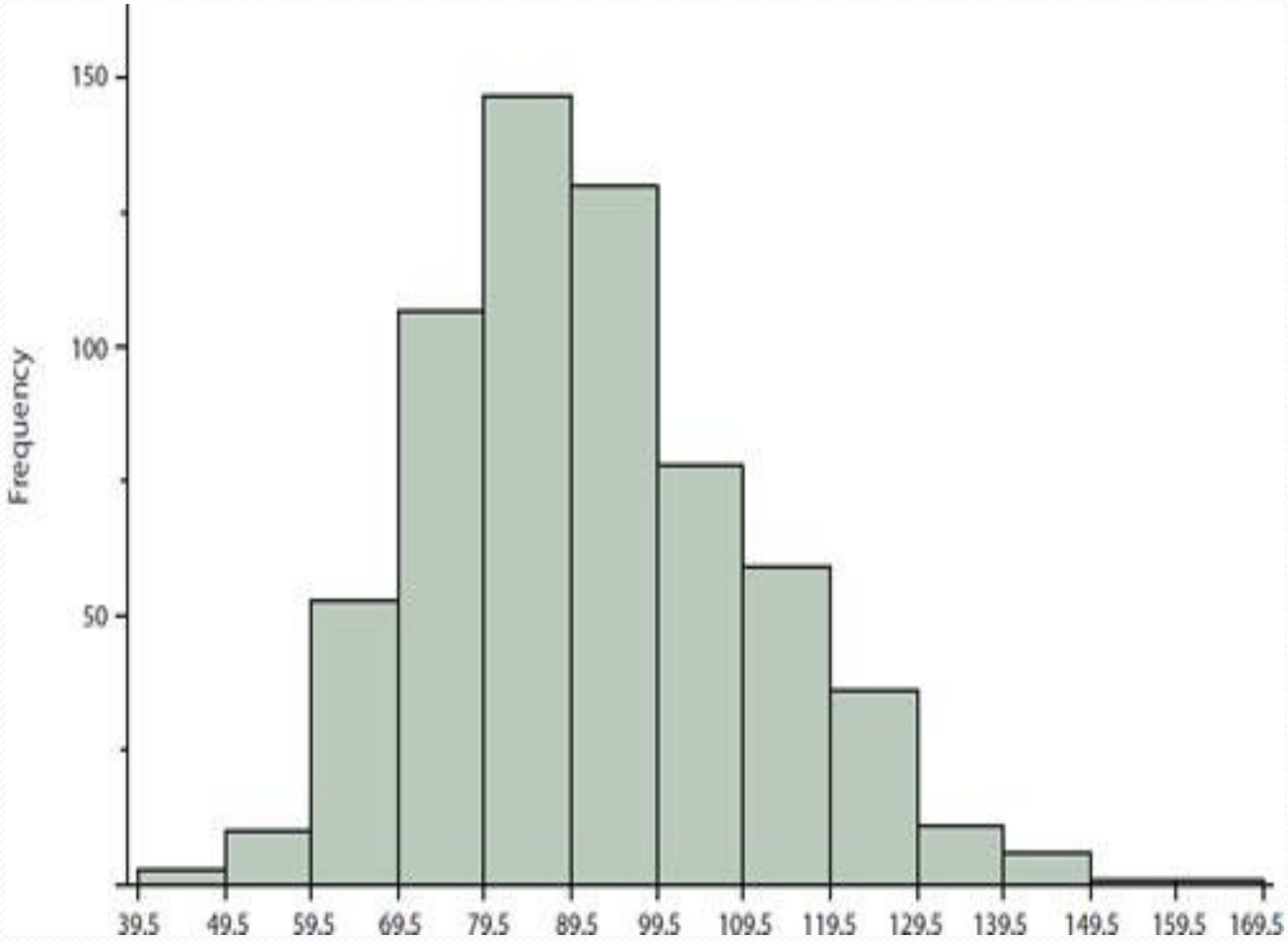
GRAPHICAL REPRESENTATION ?

NEED?

SIGNIFICANCE?

HISTOGRAM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49.5
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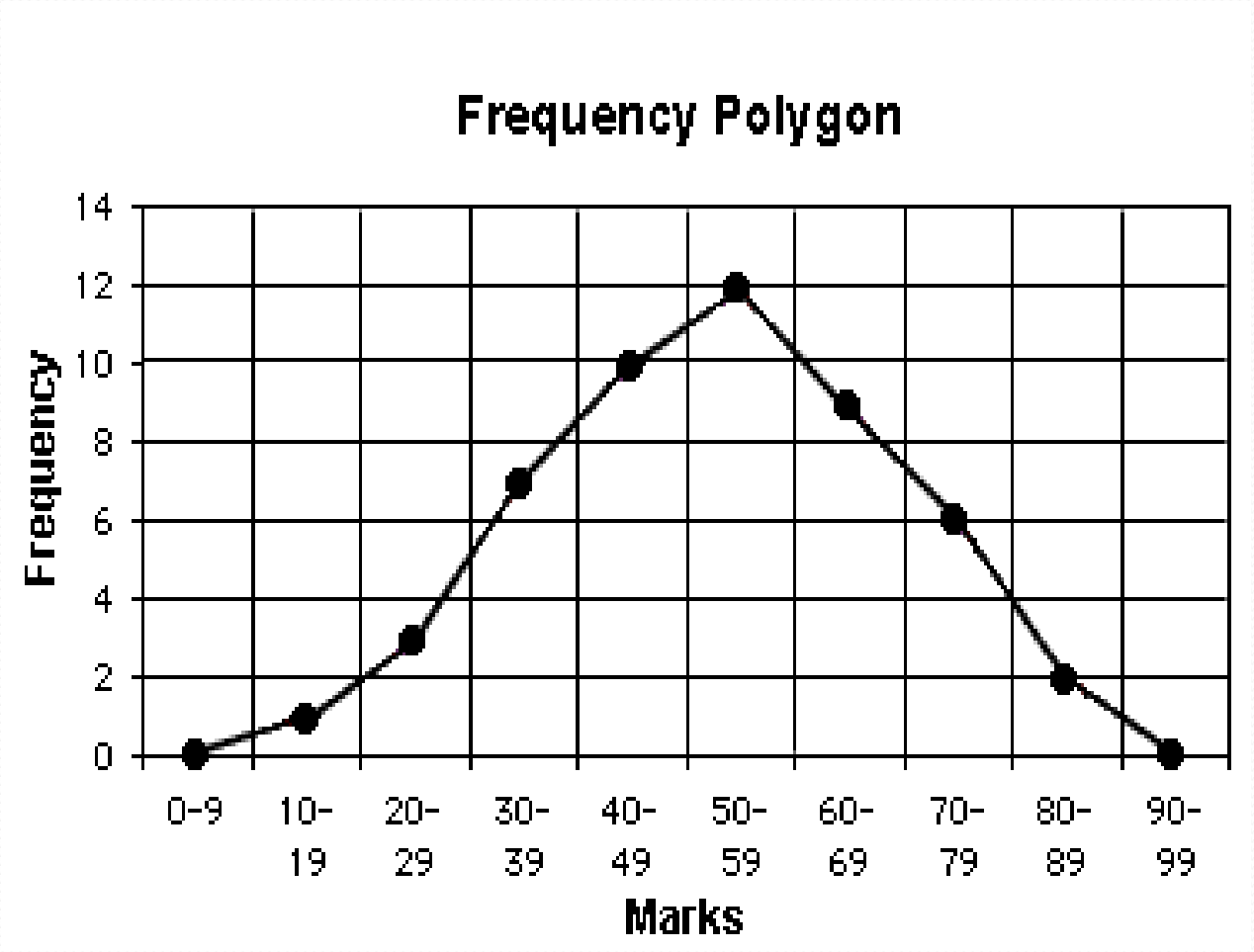
129.5
139.5
149.5
159.5
169.5


Frequency Polygon
Frequency
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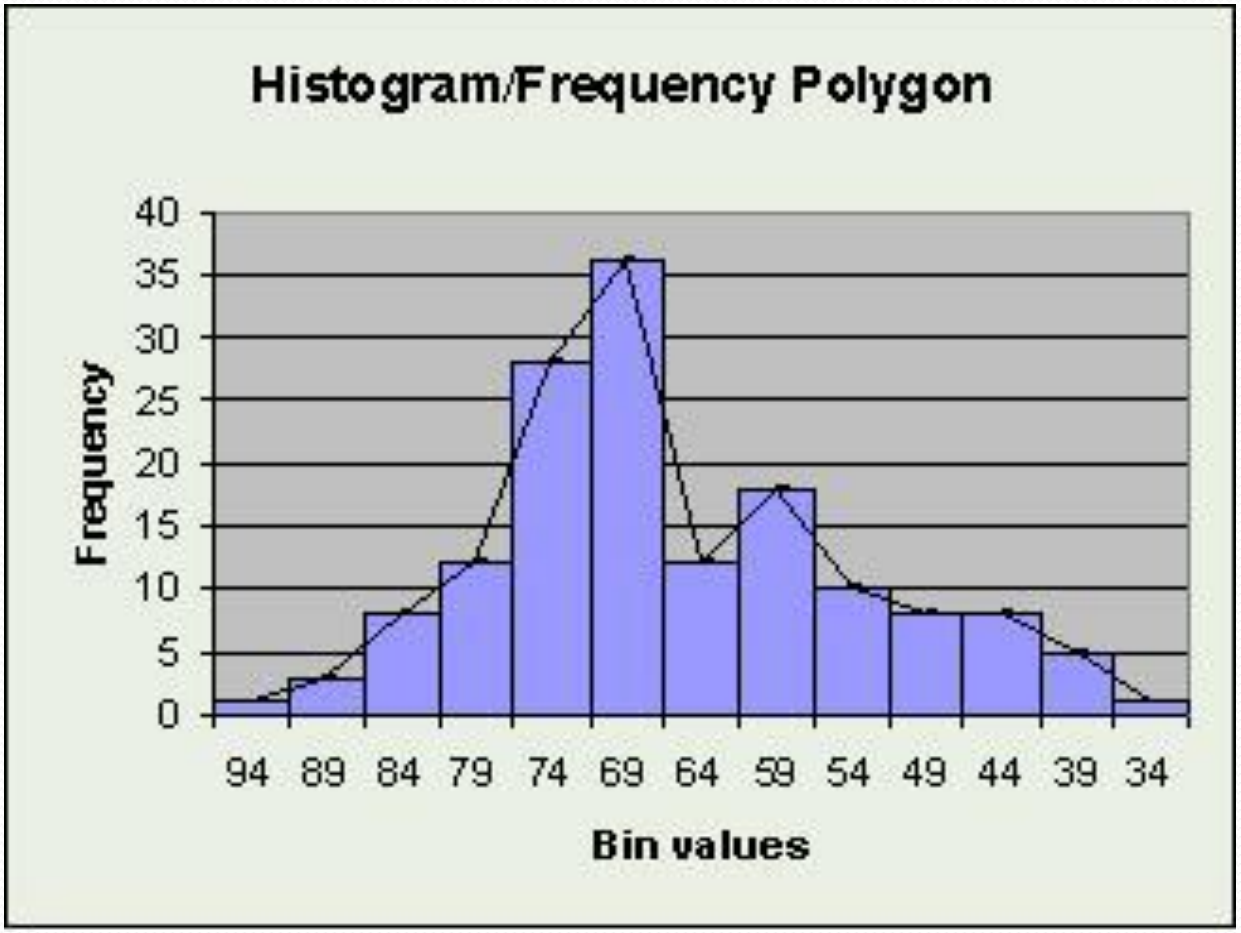
12
10
8
6
4
2
0
0-9
10-19
20-29
30-39
40-49
50-59
60-69
70-79
80-89
90-99
Marks


Histogram/Frequency Polygon
Frequency
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30
25
20
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94
89
84
79
74
69
64
59
54
49
44
39
34
Bin values

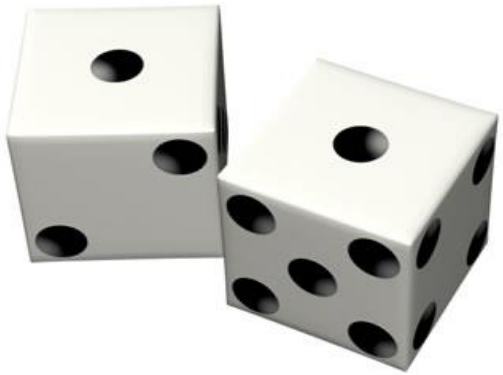
Normal Probability Curve

Probability

Probability theory developed from the study of games of chance like cards.

A process like flipping a coin, rolling a die or drawing a card from a deck are called *probability experiments*.

An *outcome* is a specific result of a single trial of a probability experiment.



Probability distributions

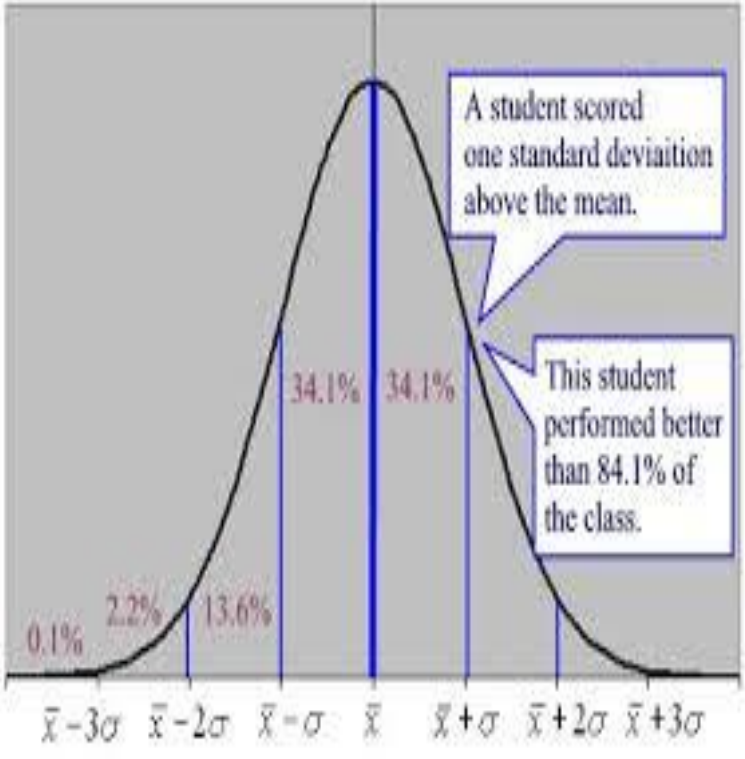
Probability theory is the foundation for statistical inference.

A *probability distribution* is a device for indicating the values that a random variable may have.

There is a large element of chance, each chance has about 50-50 probability of occuring.

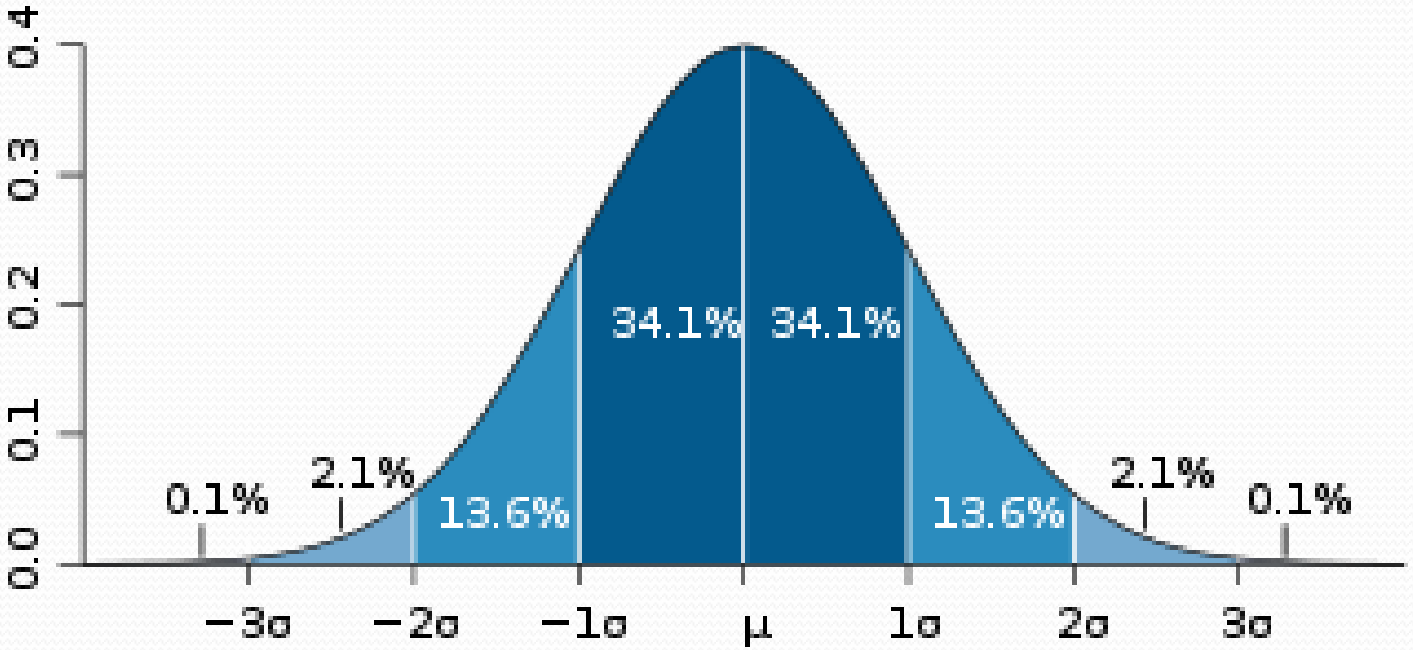
Normal curve

- In all type of graph, the measures are concentrated closely around the centre and taper off from the central high point. There are few measures at the low score as well as high score end of the scale.
- All measures are symmetrically distributed.
- There are as many measures on one side of distribution as on the other.



Normal probability curve

- When probability distribution is represented by normal curve, then it is called normal probability curve.



Normal probability curve

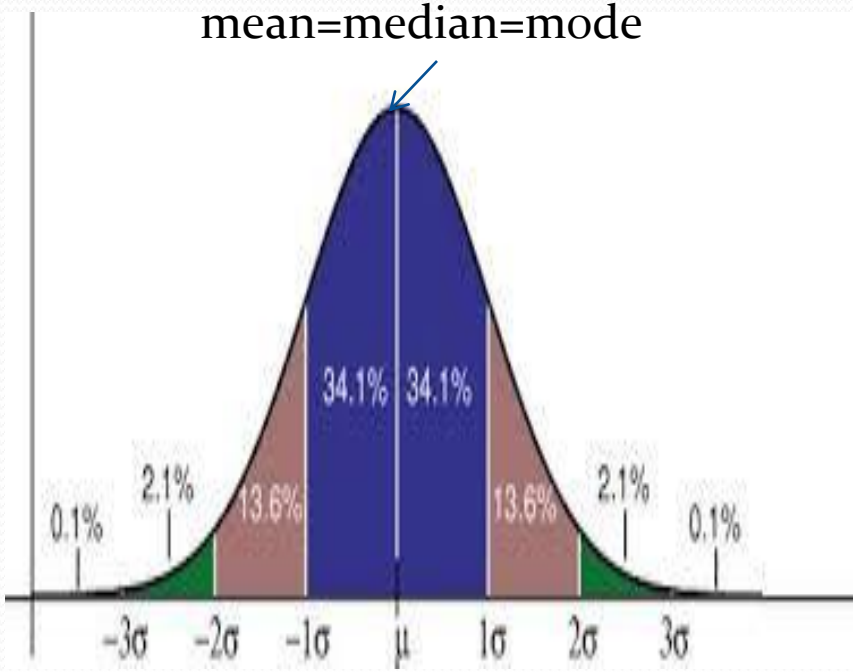
The normal distribution is the most important distribution in biostatistics.

It is frequently called the Gaussian distribution as it is derived by Laplace Gauss.

Characteristics of the normal probability curve

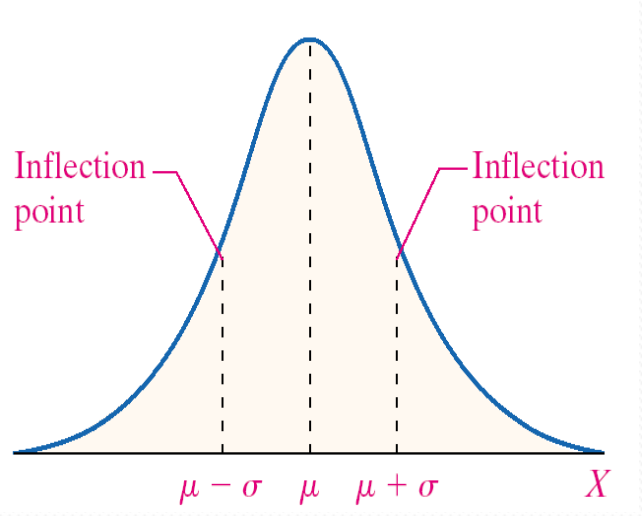
- Height is maximum at the mean.
- Perfectly symmetrical about the mean i.e. μ.
- The mean, median and mode are all equal. Mean = median = mode
- The total area under the curve above the x-axis is 1 square unit. Therefore 50% measures are to the right of m and 50% is to the left of mean.

- Bell-shaped distribution or curve



Characteristics of the normal probability curve

- The point of infection is the point where the curve changes its direction i.e. ± 1 SD from mean.



- Tails are asymptotic: closer and closer to horizontal axis but never touches it.

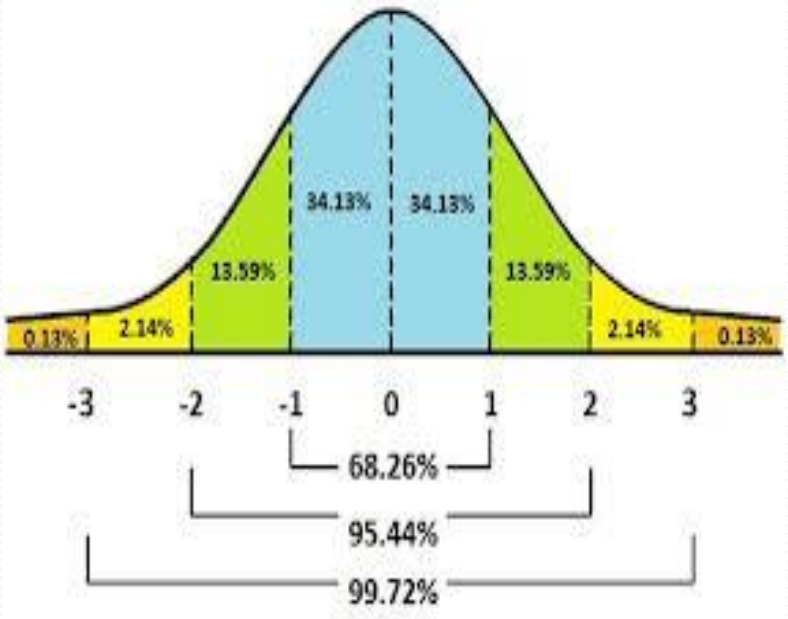
- Area under curve--

  For normal distributions

  ± 1 SD = 68.26%

  ± 2 SD = 95.44%

  ± 3 SD = 99.72%



Distortions of Normal Curve

- Data may not be normally distributed.
- In those cases we get deformed curve.
- There are two types of distortion:-

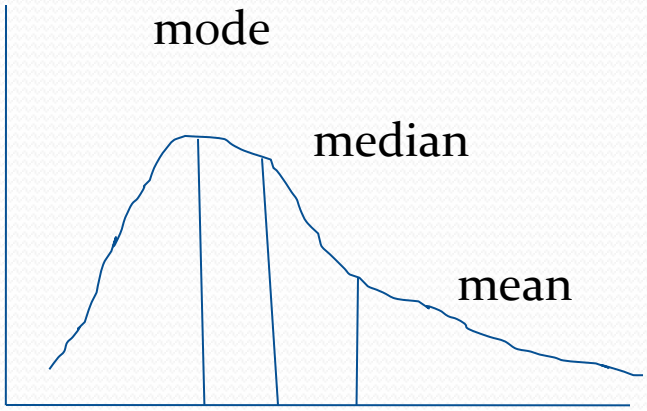
- Skewness--
- Kurtosis--Data may be bunched about the mean in a non-normal fashion. The measure of this is *kurtosis*.

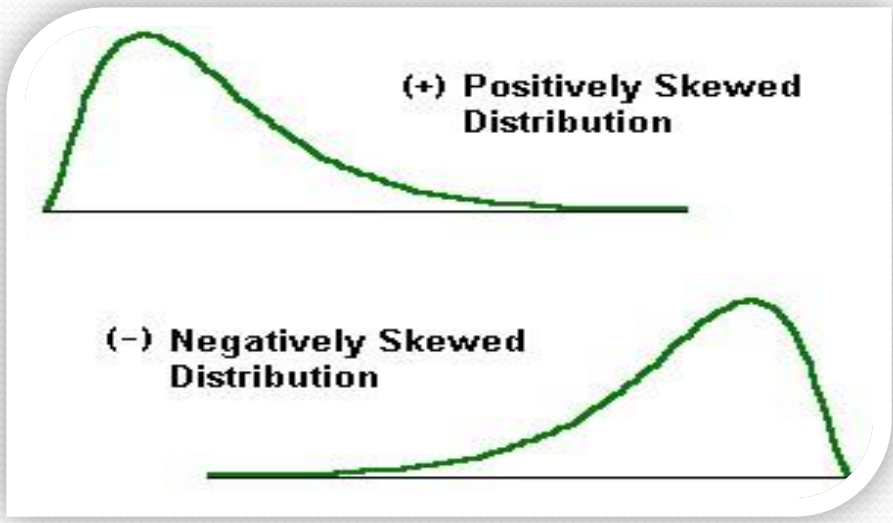
Skewness of curve

- Skew means lacking symmetry or distort.
- A distribution is said to be skewed when the mean and median fall at different points.
- Balance of gravity shifted to one side or other
- Types of skewness-
  - Positively skewed
  - Negatively skewed

Positive Skew

- The scores are piled up toward lower end on right side.
- The tail is running towards the high score side.
- Mean is to right of median.



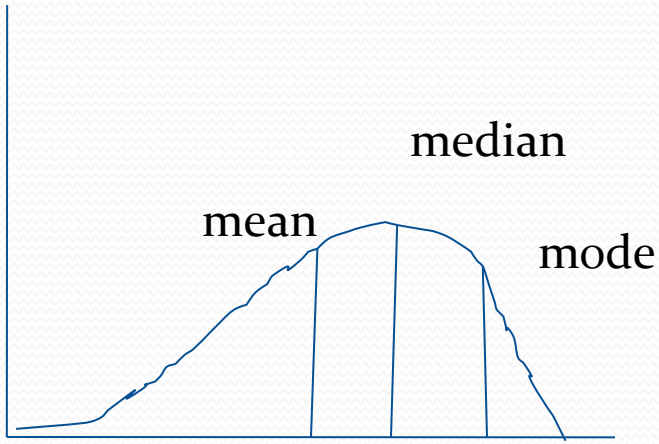


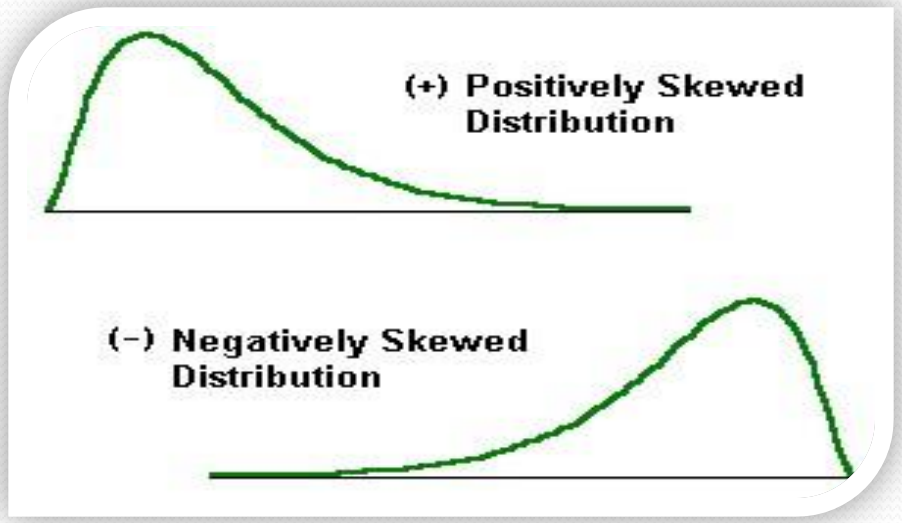
Negative Skew

The scores are piled up towards the higher end of the curve.

The tail is running towards the left side of the curve.

Mean is on the left side of median.





KURTOSIS:

• Kurtosis is the degree of peakedness of a distribution.

• KURTOSIS: Greek – “bulginess ”

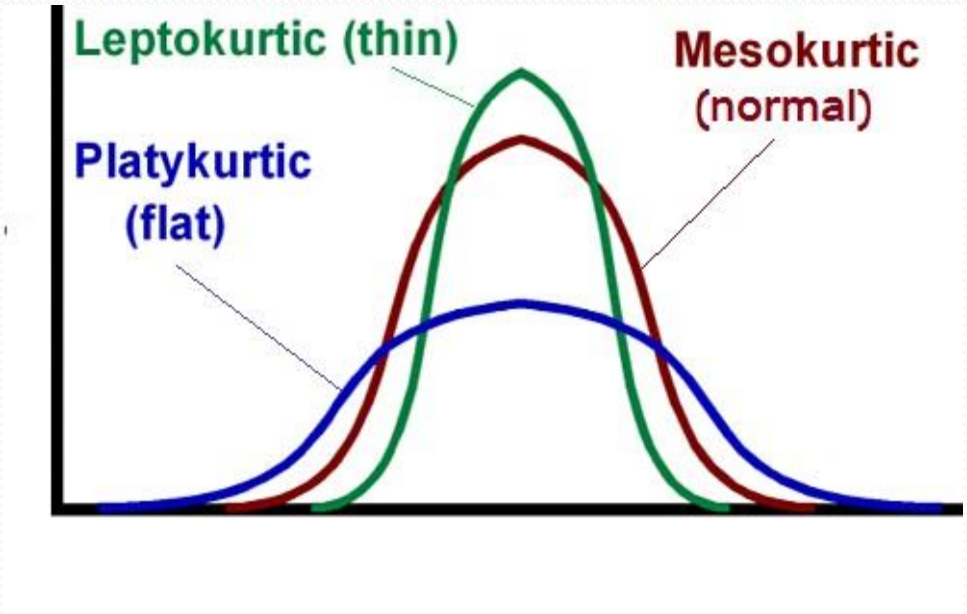
•Kurtosis indicates data that are bunched together or spread out.

•Normal curve – mesokurtic “ of intermediate peakedness”

Mesokurtic:

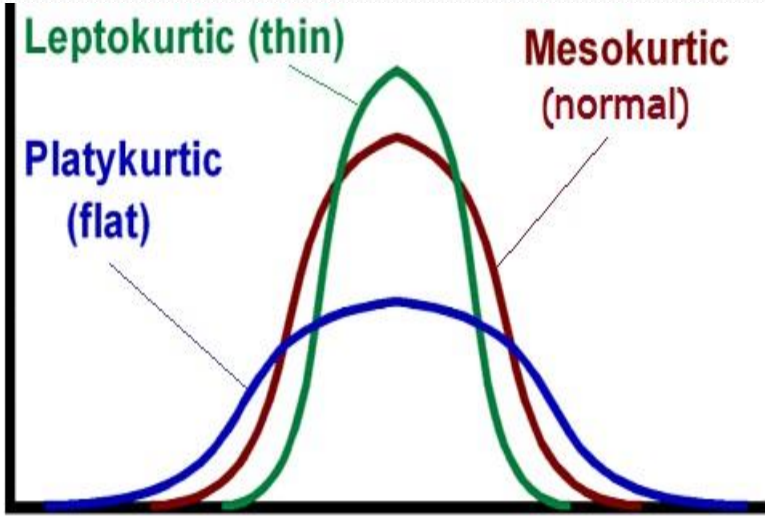
- A term used in a statistical normally distributed data set.

- measurement of slope = 0.263



Platykurtic :

- Platykurtic curve has a low concentration of scores around the central point.
- A platykurtic curve has a flatter peak around its mean, which causes broader shoulder within the distribution.

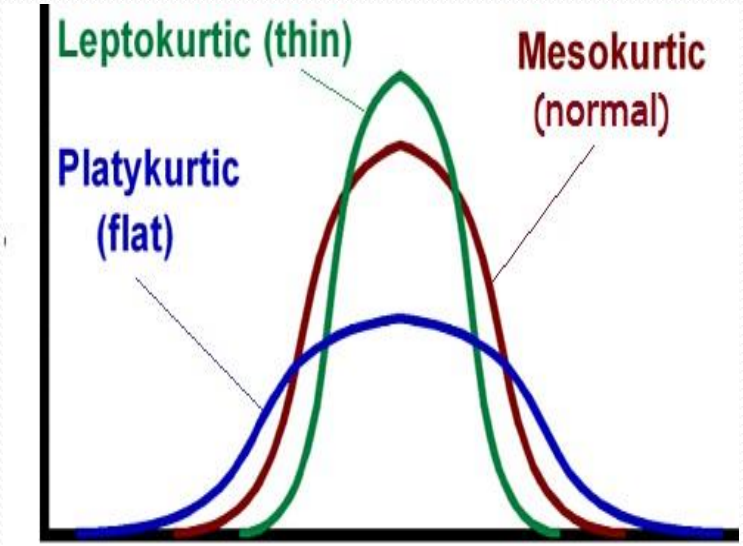


- The flatness results from the d concentrated around its mean, due to large variations within observations.
- Slope measures less than 0.263

Leptokurtic :

- Leptokurtic curve has higher concentration of scores around the central point.

- Leptokurtic distributions have higher peaks and narrow shoulder around the mean compared to normal distributions.



- These peaks result from the data being highly concentrated around the mean, due to lower variations within observations.
- Slope measures more than 0.263

Causes of skewness and kurtosis

- Selection of sample.
- Inappropriate or no use teaching aids.
- Poorly made test.
- Lack of normality in trait of students.
- Error in conduction of test.

Remedies for skewness and kurtosis

- Sample free from biasness.
- Adequate and proper use teaching aids.
- Evaluation tool must be well-made.
- Conduction of test in appropriate condition.

References:

1. “Statistics in Psychology and Education” by Henry E. Garrett.
2. “Evaluation in schools” by W. N. Dandekar.
3. “Statistics in Psychology and Education” by S. K. Mangal.
4. Google images

THANKS