

Frequently Asked Questions

1. What is a Logistic Curve?

Answer:

Logistic curve is a particular form of complex types of growth curve. A symmetric logistic curve, also known as Pearl-reed curve.

2. How is the logistic curve obtained?

Answer:

The logistic curve is given by 'y' is equal to time series = $k / 1 + \exp^{(a+bt)}$, where 'b' is less than zero, where 'a', 'b' and 'k' are constants and y_t is the value of the time series at the time 't'.

3. When does a given time series follow logistic law?

Answer:

The given time series observations y_t will follow logistic law if their reciprocal $1/y_t$ follows modified exponential law.

4. When does a given observation exhibit a straight line?

Answer:

The first difference of the reciprocals of the given observations when plotted on a semi logarithmic graph paper will exhibit a straight line.

5. What does Level of saturation mean?

Answer:

Level of saturation is point till where the rate of growth is proportional to time and after which they start declining.

6. What is a retarding factor?

Answer:

The factor $\beta - y$ is known as the retarding factor which decreases with time 't'.

7. What is a momentum factor?

Answer:

The factor 'y' is called the momentum factor which increases with time 't'.

8. What is Robertson's Law

Answer:

When the process of growth approaches the saturation level β , the rate of growth tends to zero. The principle depicted by the equation is called the Robertson's law.

9. Why weighted Index numbers is constructed?

Answer:

The construction of index number is a conscious effort in which effort is taken to assign weights to each commodity according to their importance in the total phenomenon that the index is supposed to describe.

10. What is a critical point?

Answer:

The point of inflexion is called the Critical point where from the increasing rate of curve starts to decline.

11. What are the different methods of fitting a logistic curve?

Answer:

The various methods of fitting the logistic curve to the given data are the method of three selected point, Yule's method, Hotelling method and method of successive approximation.

12. What is the equation for fitting the logistic curve?

Answer:

The equation for fitting the logistic curve is the equation of the logistic curve and is given by $Y_t = k / 1 + e^{(a+bt)}$

13. How are the three points selected in the three selected point method?

Answer:

The given time series Data is first placed on a graph paper and a trend line is drawn by the freehand method. Three ordinates y_1 , y_2 and y_3 are now taken from the trend line corresponding to selected equidistant points of time.

14. What measure of average do we use to calculate the method of three selected point for a population data?

Answer:

The sum or average or more than one neighboring values can also be taken with advantage. Values must be equidistant. For population data, geometric mean may be used.

15. What is the normal equation to calculate the values of 'a' and 'b' using the principle of least squares?

Answer:

According to the principle of least squares, the normal equations for estimating 'a' and 'b' are $\Sigma v = na + b\Sigma t$ and $\Sigma tv = a\Sigma t + b\Sigma t^2$.