Mode

Mode is that value which occurs most frequently in a statistical distribution.
According to A.M. Tuttle, "Mode is the value which has the greatest frequency density in its immediate neighborhood."
A distribution can also have more than one nodal value. A distribution having one nodal value is known as Uni-Modal. A distribution having two or more nodal values is known as Bi-Nodal or Multi-Nodal respectively.

Relation between $\overline{X}$ (Mean), M (Median) and Z (Mode)
For a moderately asymmetric series

$$Z = 3M - 2\overline{X}$$

Individual Series:

1. Arrange the series in ascending or descending order
2. Find the term which is occurring most of the times. This term is Mode (Z).

To find the Mode in a series

10	8	7	4	10	5	12	7	10	11

Arranging the series in ascending order

4	5	7	7	8	10	10	10	11	12

In this series 10 is occurring 3 times so Z = 10.

Discrete Series:
In discrete series the value which has highest frequency is Mode.
To find the mode in a series

X:	5	8	11	15	24
Frequency (f):	3	8	13	20	12

In this series the highest frequency is 20 and the variable corresponding to this is 15 so the Mode = Z = 15

Continuous Series:
To calculate the Mode, we use the following formula

$$Mode(Z) = L + \frac{f_1 - f_0}{2f_1 - f_0 - f_2} \times i$$

Where L = Lower limit of Modal interval
f_1 = frequency corresponding to Modal interval
f_2 = frequency of succeeding Modal Interval
f_0 = frequency of preceeding Modal interval
i = Length of Modal interval
Mode can also be calculated by taking the upper limit

$$Mode(Z) = L - \frac{f_1 - f_2}{2f_1 - f_0 - f_2} \times i$$

Where L is the upper limit.
To calculate the Mode of a continuous series

X:	0-10	10-20	20-30	30-40	40-50	50-60	60-70
f:	5	12	20 (f_0)	43 (f_1)	32 (f_2)	21	8

The Modal interval is 30-40, L = 30, i = 10
f_0 = 20, f_1 = 43, f_2 = 32