

The answer is the following:

➤ The Mean (arithmetic)

$$\bar{x} = \frac{\sum_{i=1}^k f_i \cdot x_i}{N} = \text{The answer is the following:}$$

### THE MEASURES OF SHAPE

Sometimes the original data are unknown, but we know the measures of location and measures of variability. We want to determine the original distribution from these measures. The importance of the histogram and polygon is that it can provide a clear picture of the shape of a distribution. As the number of class intervals and frequencies are increased so the polygon and histogram move more closely towards a curve.

A frequency curve is formed by:

- ❖ Smoothing out a histogram or polygon
- ❖ Using smaller class intervals and more observations to smooth out the line of the curve.

In order to make the curve we have to define new measures. They are called measures of shape. Measures of shape can be divided into two parts according to whether they measure the asymmetry or kurtosis. The etalon is the density function of Normal distribution. It is a symmetrical curve.

Some frequency distributions are skewed so that the peak is displaced to the left or to the right. When the peak is displaced to the left of centre, the distribution is described as being positively. When the peak is displaced to the right of centre, the distribution is described as being negatively.

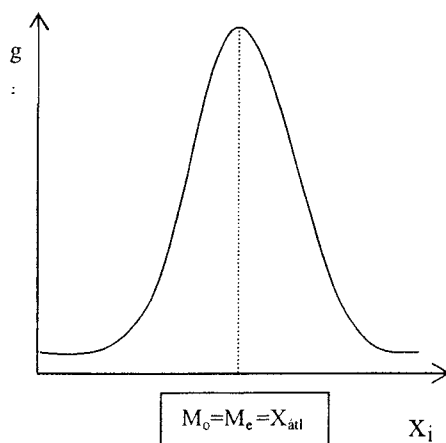
Asymmetry

Measures of skewness

Symmetry

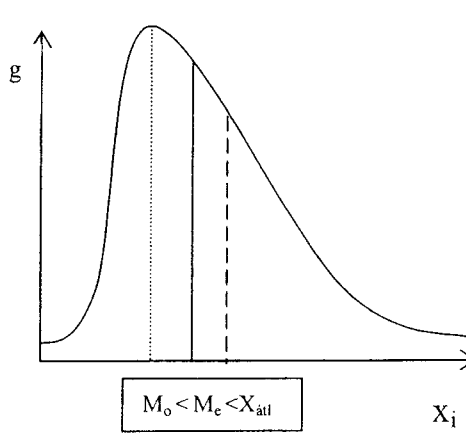
asymmetry to the left

asymmetry to the right



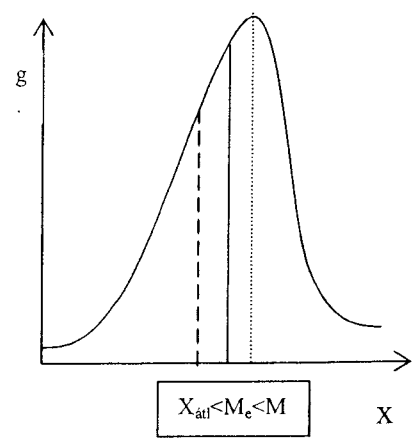
$$Q_3 - M_e = M_e - Q_1$$

1) Coefficient "A"



$$Q_3 - M_e > M_e - Q_1$$

$$A = \frac{\bar{x} - M_o}{\sigma} =$$



$$Q_3 - M_e < M_e - Q_1$$

$|A| \leq 0.4$  weak  
 $0.44 \leq |A| \leq 0.6$  satisfactory  
 $0.6 \leq |A|$  strong