**Geometric Mean**

Geometric Mean(GM)= 

Rate of Increase Over Time(GM)= 

Example (1)

Compute the geometric mean of following percent increases :8,12,14,26,and 5

Solution

Geometric Mean(GM)= 

1.128-1=o.128

12.8 percent increase

Example (2)

In 1985 there were 340,213 cell phone subscribers in the United States. By 2006 the number of cell phone subscribers increased to 233,000,000 .What is the geometric mean annual increase for the period?

Solution

Rate of Increase Over Time(GM)= =1.3646

1.3646-1=0.3647

Rate of increase is 36.47 percent per year

**Chebyshev’s Theorem**

The percent=

Example (3)

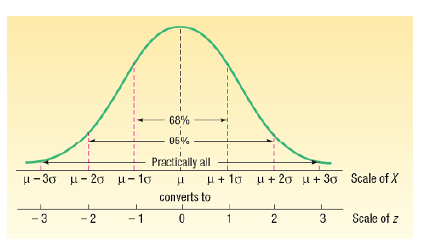
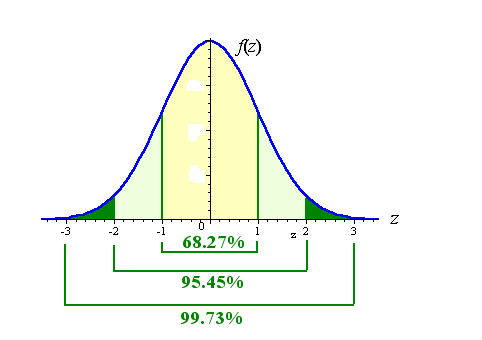
According to Chebyshev’s theorem,at least what percent of any set of observations will be within 1.8 standard deviations of the mean

Solution

The percent=

About 69%

**The Empirical Rule**



Example (4)

A sample of the rental rates at University Park Apartments approximates a systematical, bell- shaped distribution. The sample mean is $500; the standard deviation is $20.Using the Empirical Rule ,answer these questions:

1. About 68 percent of the monthly food expenditures are between what two amounts?
2. 1. About 95 percent of the monthly food expenditures are between what two amounts?
3. 1. About all of the monthly(99.7%) food expenditures are between what two amounts?

Solution

1. 

About 68 percent are between $480 and $520 .

1. 

About 95 percent are between $460 and $540.

1. 

About 99.7 percent are between $440 and $560.

Example (5)

The mean income of a group of sample observations is $500;the standard deviation is $40.According to Chebyshev’s theorem, at least what percent of income will lie between $400 and $600

Solution





The percent=

About 84%