

In the table, there are given amounts of chocolate bars bought in particular shops in 2 weeks

Task: Find number of observations, minimum, maximum, range, sum, average value, mode, standard deviation and variance coefficient, skewness, kurtoses.

14	12	28	18	20	Number of cases
18	15	20	14	16	Minimum
25	27	22	17	15	Maximum
21	10	25	25	24	Range
20	11	16	25	20	Sum
13	20	18	29	30	Average value
18	17	19	11	14	Mode
27	19	26	27	19	Median
15	17	24	26	26	Variance
19	22	16	22	27	Standard deviation
20	25	19	25	13	Variance coefficient
24	18	26	14	17	Skewness
12					Kurtoses
15					
27					
10					
11					
20					
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17					
22					
25					
18					
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cs.
nedian, variance,

60
10
30
20
1200
20
20
19.5
26.24
5.12
0.26
0.03
-0.97

Column1		
Mean		20
Standard Error	0.661277654	
Median		19.5
Mode		25
Standard Deviation	5.122234682	
Sample Variance	26.23728814	
Kurtosis	-0.970885509	
Skewness	0.026614787	
Range		20
Minimum		10
Maximum		30
Sum		1200
Count		60

Results are in table.
Calculate weighted average of grades.

Grade	Credits
2	6
1	6
1	6
2	3
3	5
1	6
1	5
1	3
2	6
3	2
1	6
2	3
1	6
3	6
2	5
2	3
1	6
3	6
3	3
3	6
1	5
2	6

Measures of central tendency: $\bar{X}$

Mode:	$\tilde{X}$	most frequent value	
Median:		middle value	
p-% quantil			
Mean:	$\mu = \frac{1}{N} \sum_{i=1}^N x_i$		
Sample average value:	$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$		
Geometric mean:	$\bar{x}_g = \sqrt[n]{x_1 x_2 \dots x_n}$		

Measures of variability:

Range:	$R = \max x_i - \min x_i$		
Population variance:	$\sigma^2 = \frac{1}{N} \sum_{i=1}^N (x_i - \mu)^2$		
Sample variance:	$s^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$		
Population standard deviation:	$\sigma = \sqrt{\sigma^2}$		
Sample standard deviation:	$s = \sqrt{s^2}$		
Coefficient of skewness:	$s_k = \frac{\sum (x_i - \bar{x})^3}{s^3}$		
Coefficient of kurtoses			
Varianceí coefficient:	$V = \frac{\sigma}{\bar{x}}$		

[Data](#) → [Data Analysis](#) → [Descriptive Statistics](#)

Histogram

Sturgers rule: $k = \text{Round}(\sqrt[3]{\log(n)}) + 1$

[Data](#) → [Data Analysis](#) → [Histogram](#)

Weighted characteristics

Weighted average value:

$$\bar{x}_w = \frac{\sum_{i=1}^k w_i x_i}{\sum_{i=1}^k w_i}$$

Weighted variance:

$$s_w^2 = \frac{\sum_{i=1}^k w_i (x_i - \bar{x})^2}{\sum_{i=1}^k w_i - 1}$$

Weighted standard deviation:

$$s_w = \sqrt{s_w^2}$$

Excel 2013

=MODE.SNGL

=MEDIAN

=AVERAGE

=GEOMEAN

=VAR.P

=VAR.S

=STDEV.P

=STDEV.S

=SKEW

=KURT