

Histo delle misure di un campione di 301400 misure

Esempi di istogrammi con kallidagroph (parte 1)

$$n = 301400$$

$$B_{im} = 1.0$$

$$B_{im} = 2.0$$

$$B_{im} = 3.0$$

$$B_{im} = 4.0$$

$$n = 420$$

$$B_{im} = 1.0$$

$$B_{im} = 2.0$$

$$B_{im} = 3.0$$

$$B_{im} = 4.0$$

$$n = 21 \text{ medie}$$

$$(21 \times 20 = 420)$$

$$B_{im} = 1$$

$$B_{im} = 2.0$$

$$n = 20 \text{ dei } 420 \text{ sottocampioni}$$

$$B_{im} = 3$$

$$\& B_{im} = 4$$

$$\& B_{im} = 5.$$

where:

n = number of data points

x_i = current data value

\bar{x} = mean of the data

Mean

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

RMS (Root Mean Square)

$$\left[\frac{1}{n} \sum_{i=1}^n x_i^2 \right]^{1/2}$$

Standard Deviation

$$\sqrt{\frac{\left[\sum_{i=1}^n x_i^2 \right] - n(\bar{x})^2}{n-1}}$$

Standard Error

$$\frac{\text{Standard Deviation}}{\sqrt{n}}$$

Variance

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

Skewness

$$\frac{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^3}{\left(\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2 \right)^{3/2}}$$

Skewness (Using Moments)

$$\frac{m_3}{(m_2)^{3/2}}$$

Kurtosis

$$\frac{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^4}{\left(\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2 \right)^2} - 3$$

Kurtosis (Using Moments)

$$\frac{m_4}{(m_2)^2} - 3$$

Histogram X

	B
-0.10000	302
0.90000	1765
1.9000	5024
2.9000	10540
3.9000	17461
4.9000	24254
5.9000	29631
6.9000	32606
7.9000	33278
8.9000	31016
9.9000	27368
10.900	23123
11.900	18507
12.900	14212
13.900	10309
14.900	7441
15.900	5005
16.900	3395
17.900	2279
18.900	1502
19.900	975

Histogram X

	B
20.900	551
21.900	375
22.900	204
23.900	117
24.900	73
25.900	41
26.900	18
27.900	14
28.900	6
29.900	4
30.900	2
31.900	1
32.900	0
33.900	1
34.900	0
35.900	0
36.900	0
37.900	0
38.900	0

KaleidaGraph

File Edit Gallery Plot Data **Functions** Macros Windows Help

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 Ctrl+=

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Bin Data

Bin Data: B

Sampled X At	Counts: 301400
-0.10000	302
0.90000	1765
1.9000	5024
2.9000	10540
3.9000	17461
4.9000	24254
5.9000	29631
6.9000	32606
7.9000	33278
8.9000	31016
9.9000	27368
10.900	23123

Distribution:

Min: -0.10000 # of Bins: 40

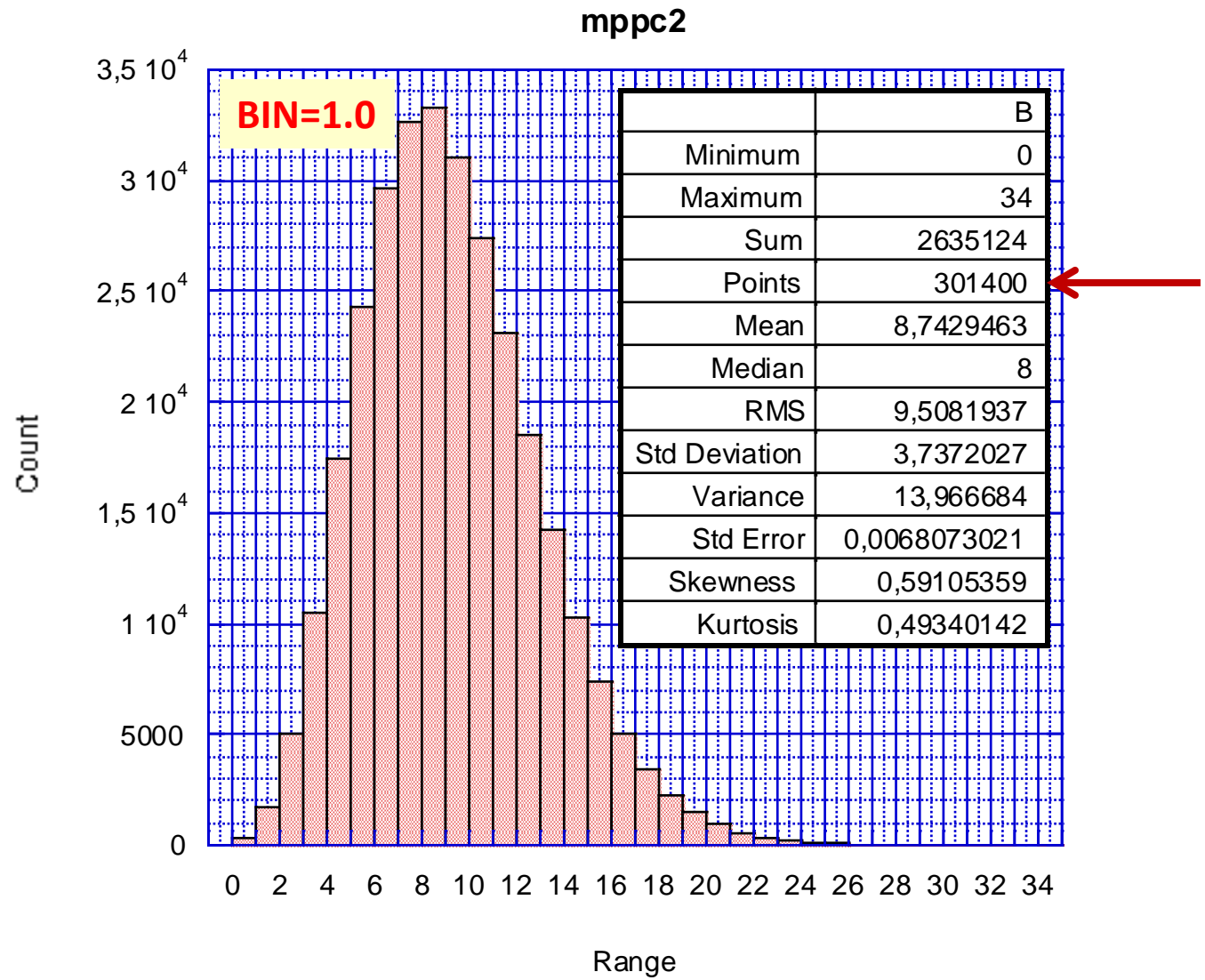
 Max: 39.900

Y Units: Bin Counts Percent

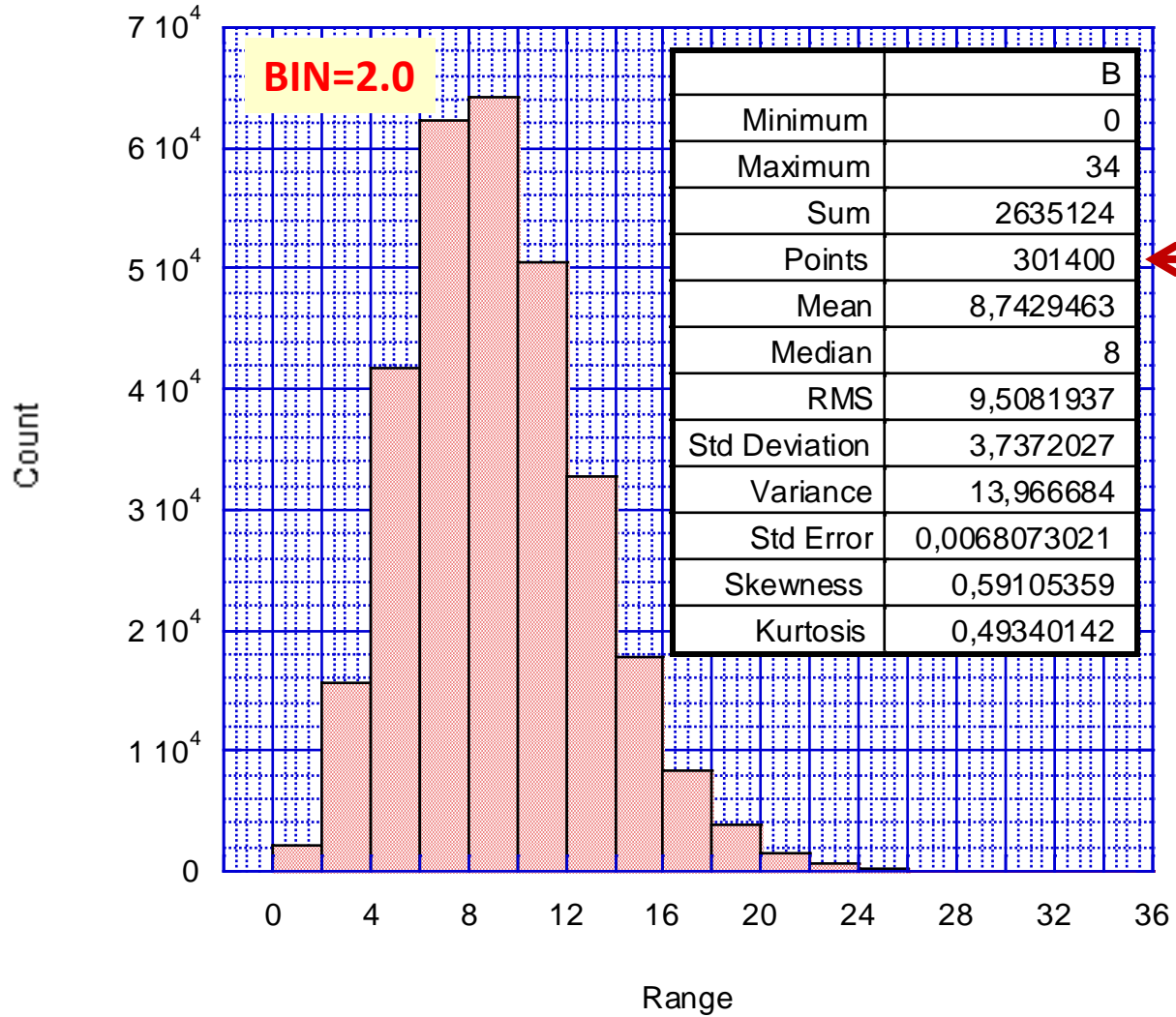
 Show Sample At: Left Bin Edge Center of Bin Right Bin Edge

 Export Format: Histogram Step Plot Spike Plot

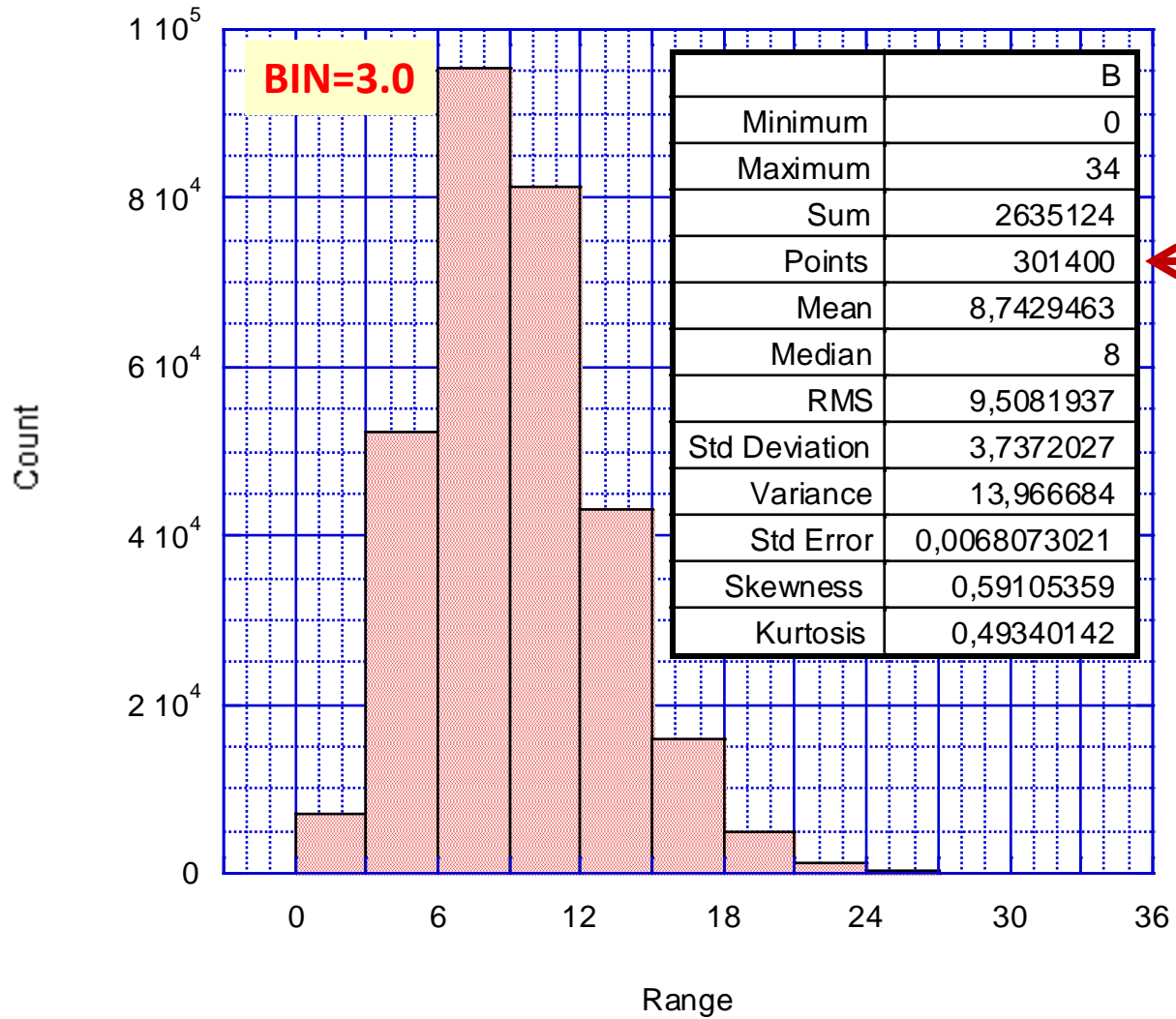
Histo delle misure di un campione di 301400 misure



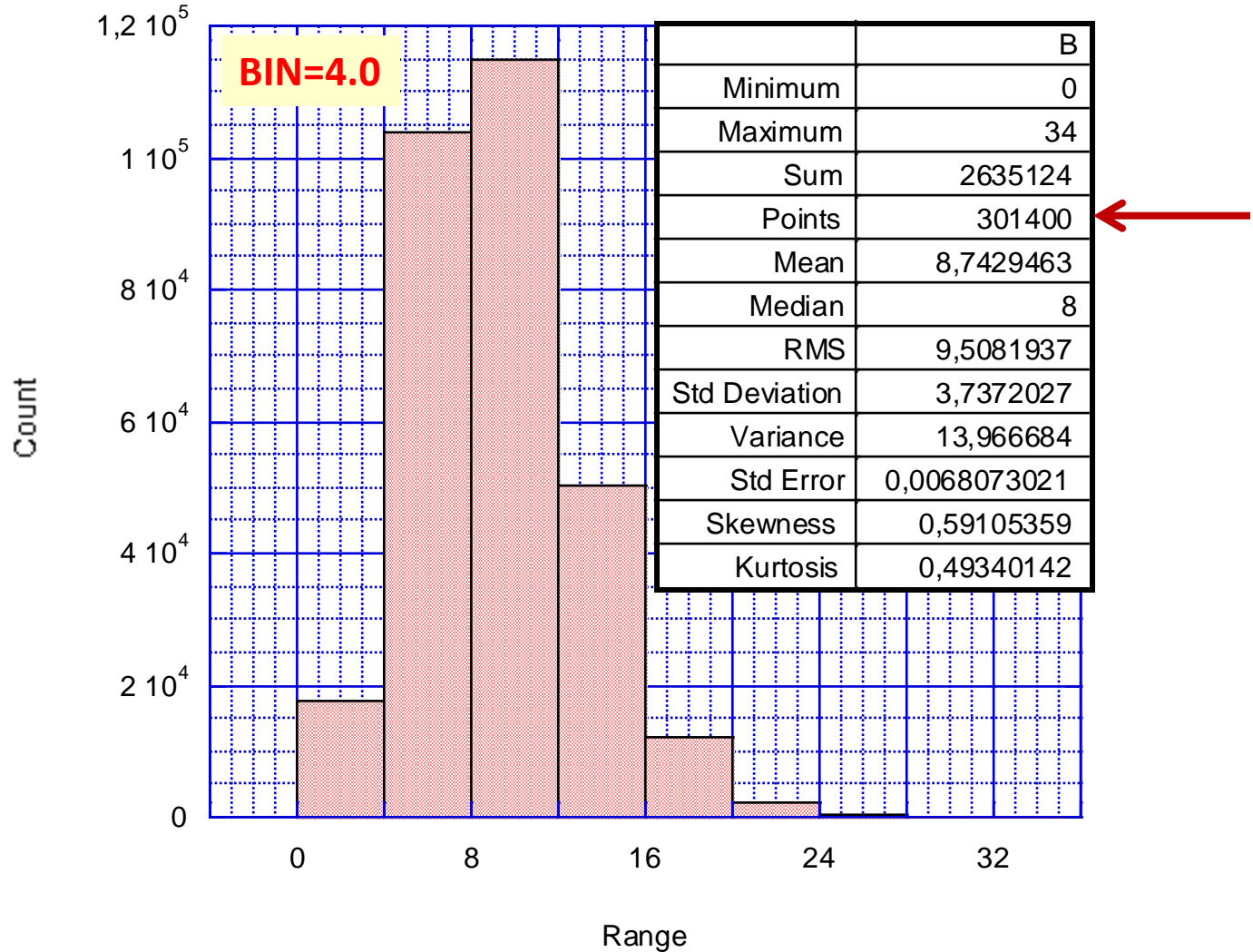
mppc2



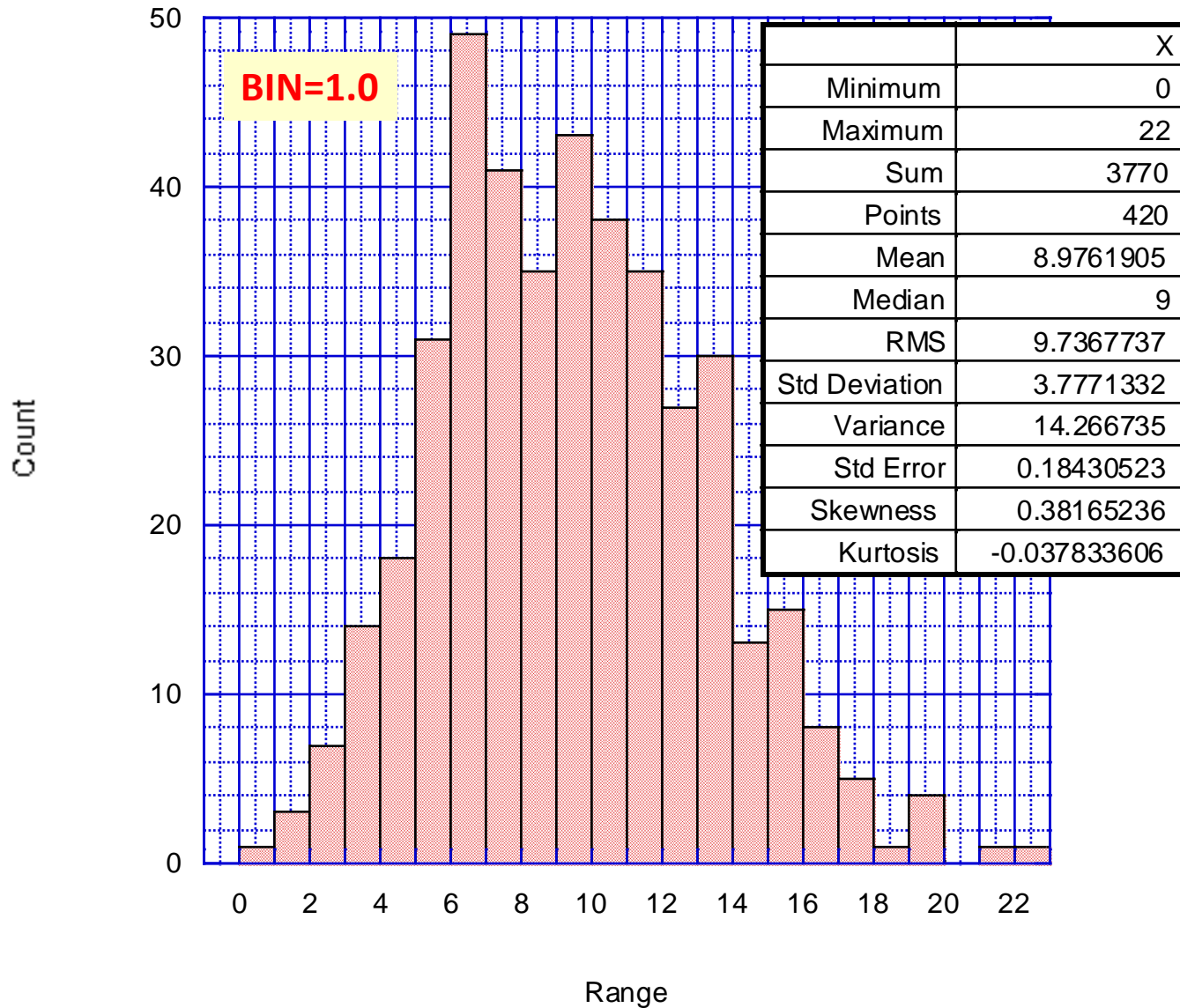
mppc2



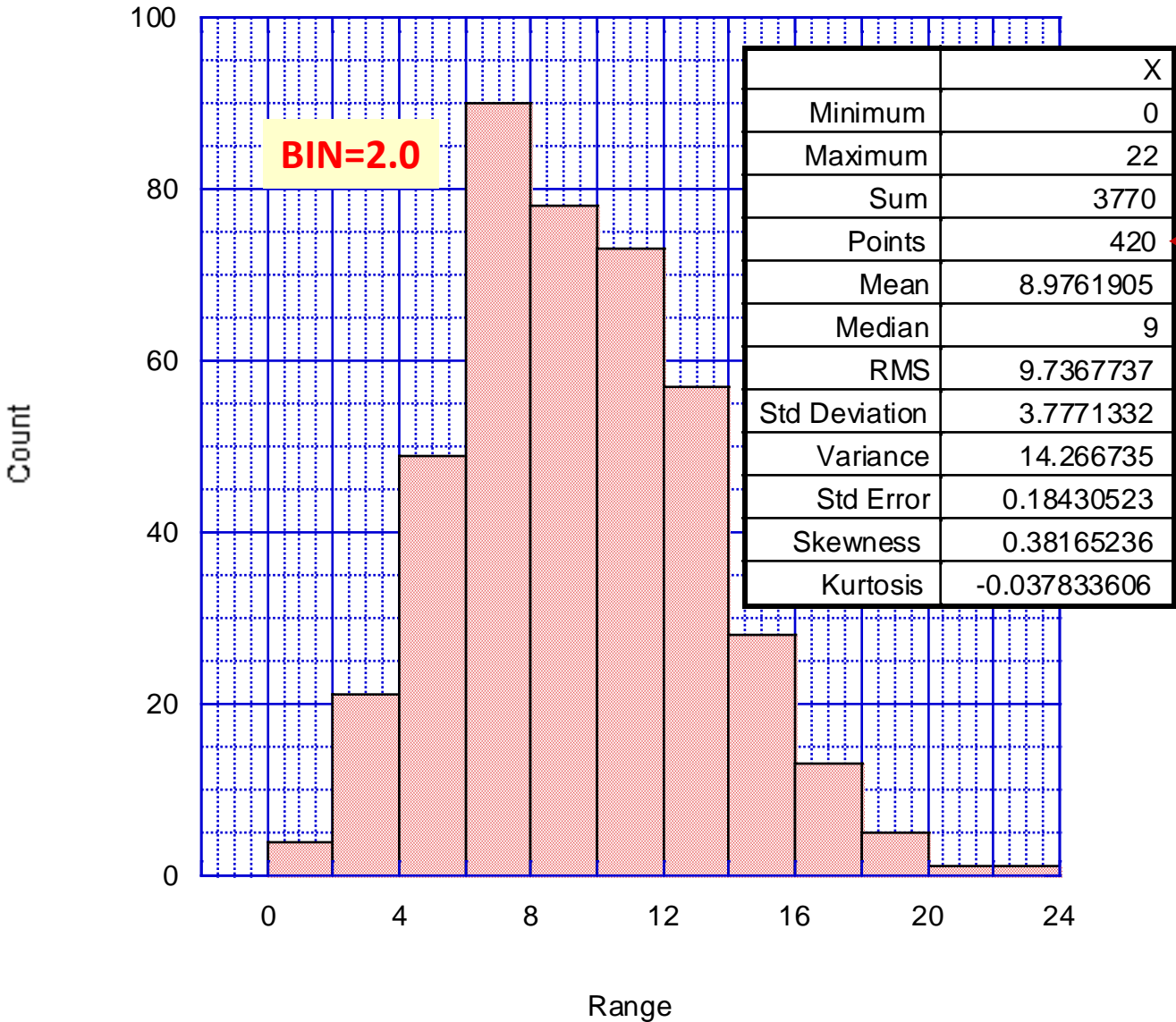
mppc2



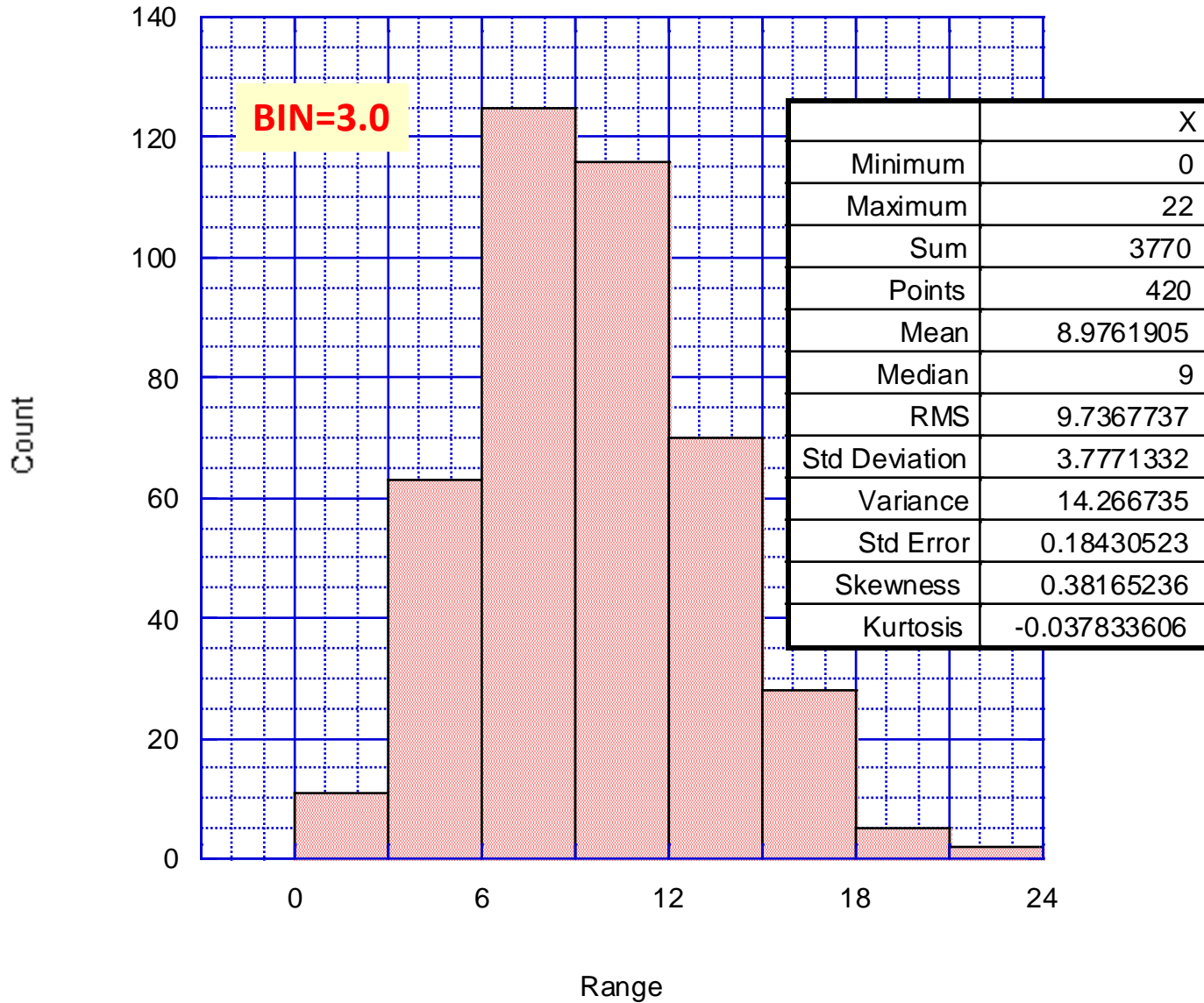
Data 3

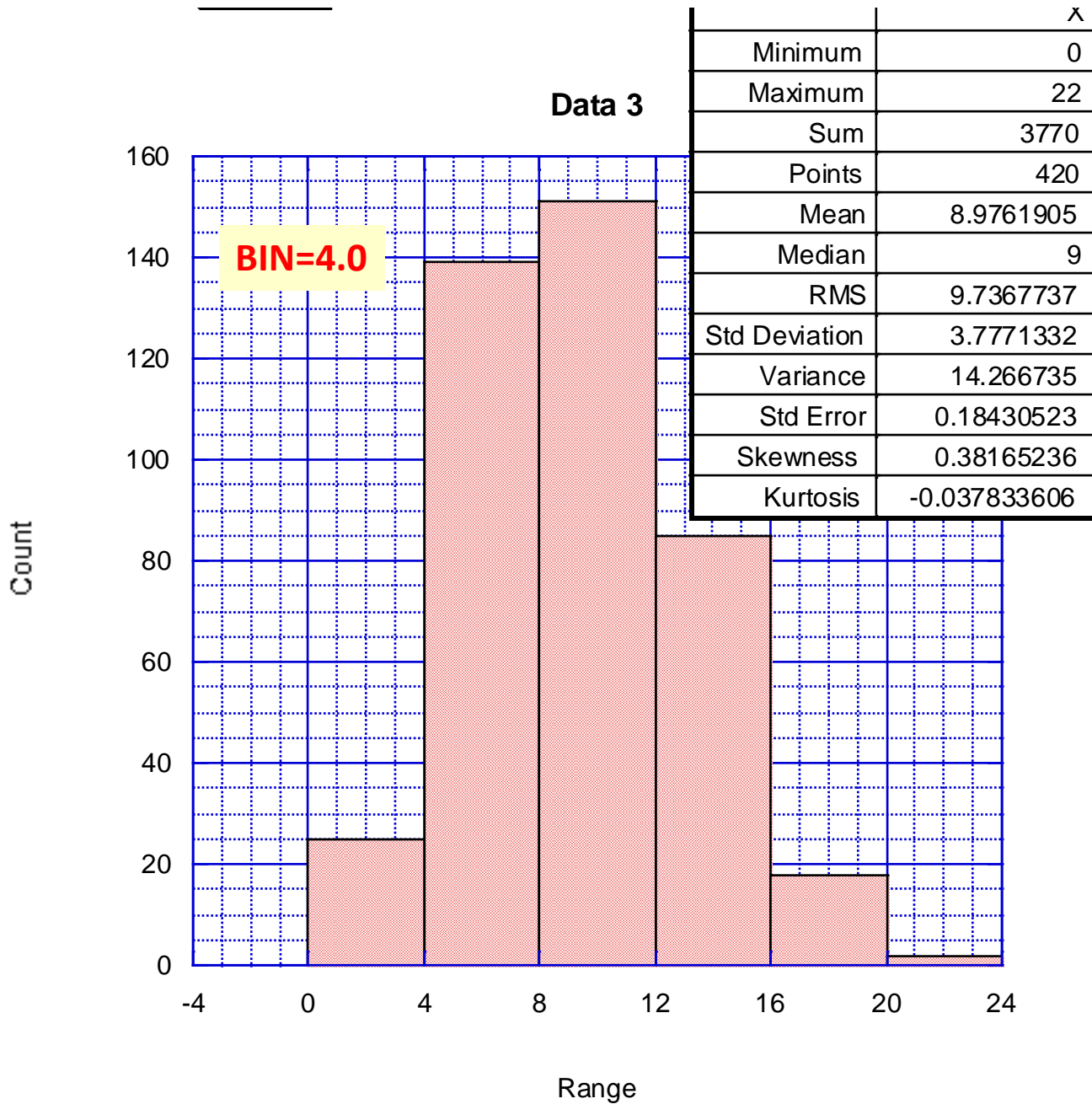


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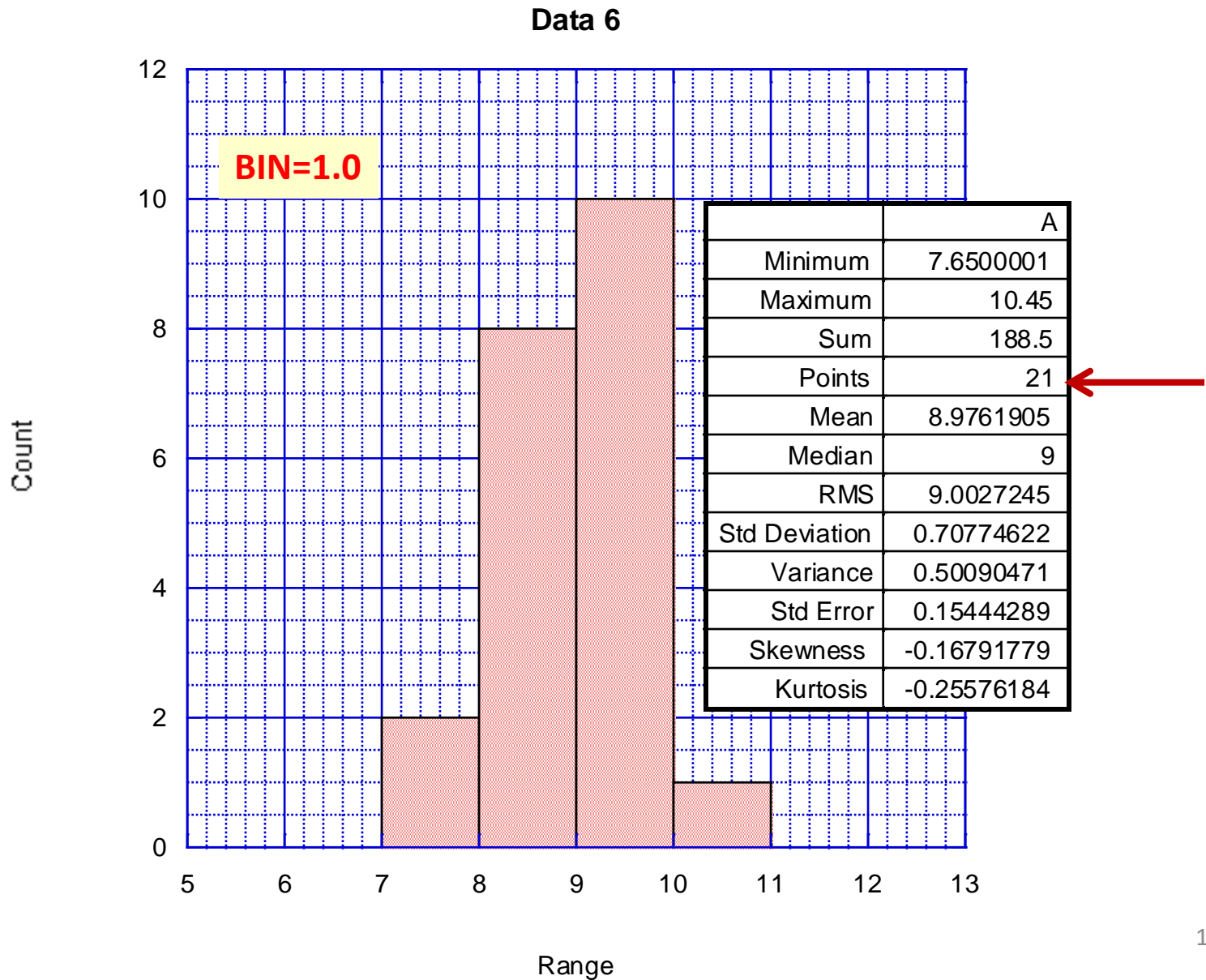


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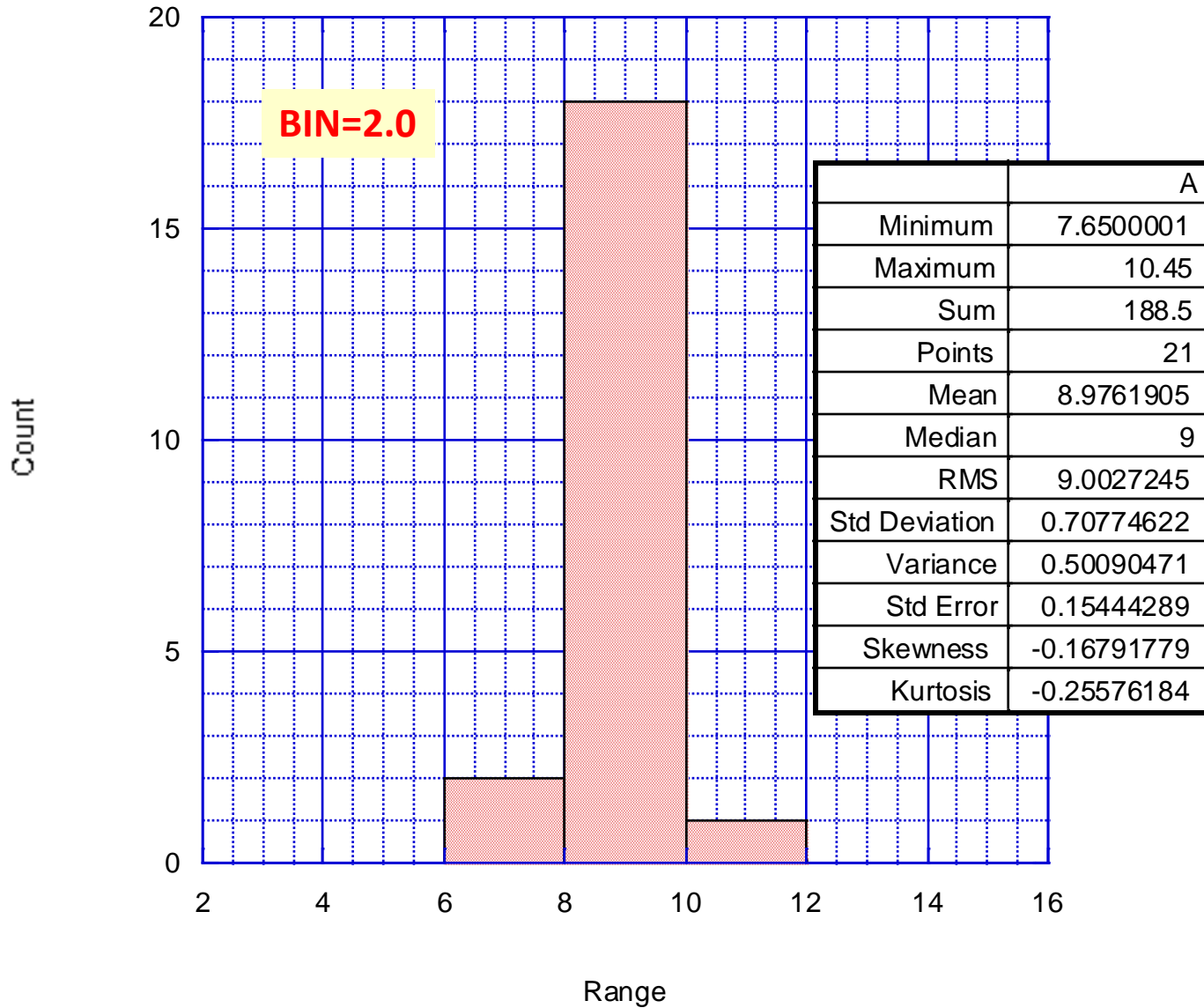




Histo dei valori medi di ciascuno dei 21 sottogruppi da 20 misure
del sottocampione da 420 misure del campione totale da 301400 misure
(21 x 20 = 420)



Data 6



Esempi di istogrammi con kallidograph (parte 1)

@ pag. 12 => **histo di 21 valori medi da 21 sottocampioni ciascuno con 20 campioni**

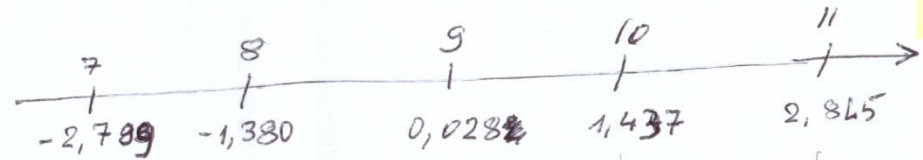
$N = 21$
 $\langle x \rangle = 8,98$
 $\sigma = 0,71$
 $\frac{\sigma}{\sqrt{N}} = 0,15$
 $\text{min} = 7,65$
 $\text{max} = 10,45$

$\Delta \text{BIN} = 1,0$

7 - 8	2	} 21
8 - 9	8	
9 - 10	10	
10 - 11	1	

$$t = \frac{x - \bar{x}}{s(x)}$$

Test del χ^2



$c_1 = \text{cum}(-2,789) = 0,0026436$
 $c_2 = \text{cum}(-1,380) = 0,083793$
 $c_3 = \text{cum}(0,028) = 1 - 0,48883 = 0,51117$
 $c_4 = \text{cum}(1,437) = 1 - 0,075359 = 0,924641$
 $c_5 = \text{cum}(2,845) = 1 - 0,0022206 = 0,997774$

E_k	$(c_2 - c_1) \cdot N = 1,704$	$(c_3 - c_2) \cdot N = 8,975$	$(c_4 - c_3) \cdot N = 8,683$	$(c_5 - c_4) \cdot N = 1,536$
θ_k	2	8	10	1
$\frac{(E_k - \theta_k)^2}{E_k}$	0,051	0,106	0,120	0,187

$\chi_0^2 = 0,544$
 $\nu = 4 - 3 = 1$

$P(\chi^2, \chi_0^2, \nu) = 46\%$

$LC = 95\% : \chi^2 > 0,0010 \ \& \ \chi^2 \leq 5,0239$

"Teorema del limite centrale"



Exit



About

Normal Distribution

Chi-Square

Student's t

F-Distribution

deg. of freedom

1

chi square statistic

0.544

alpha

0.4608

deg. of freedom

1

level of signif.

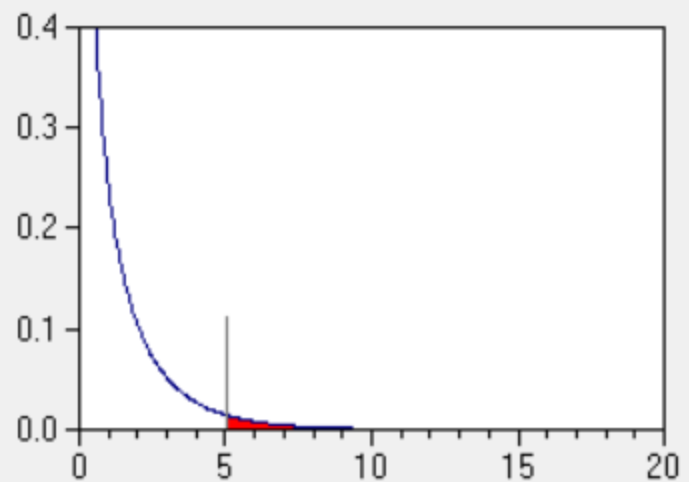
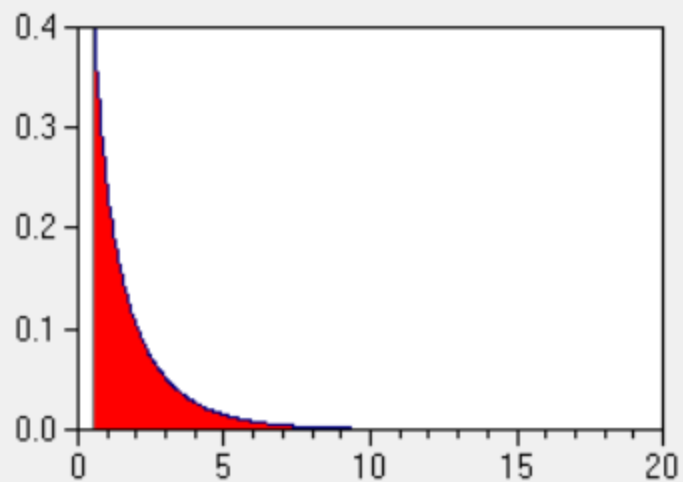
0.05

critical chi-square value one sided

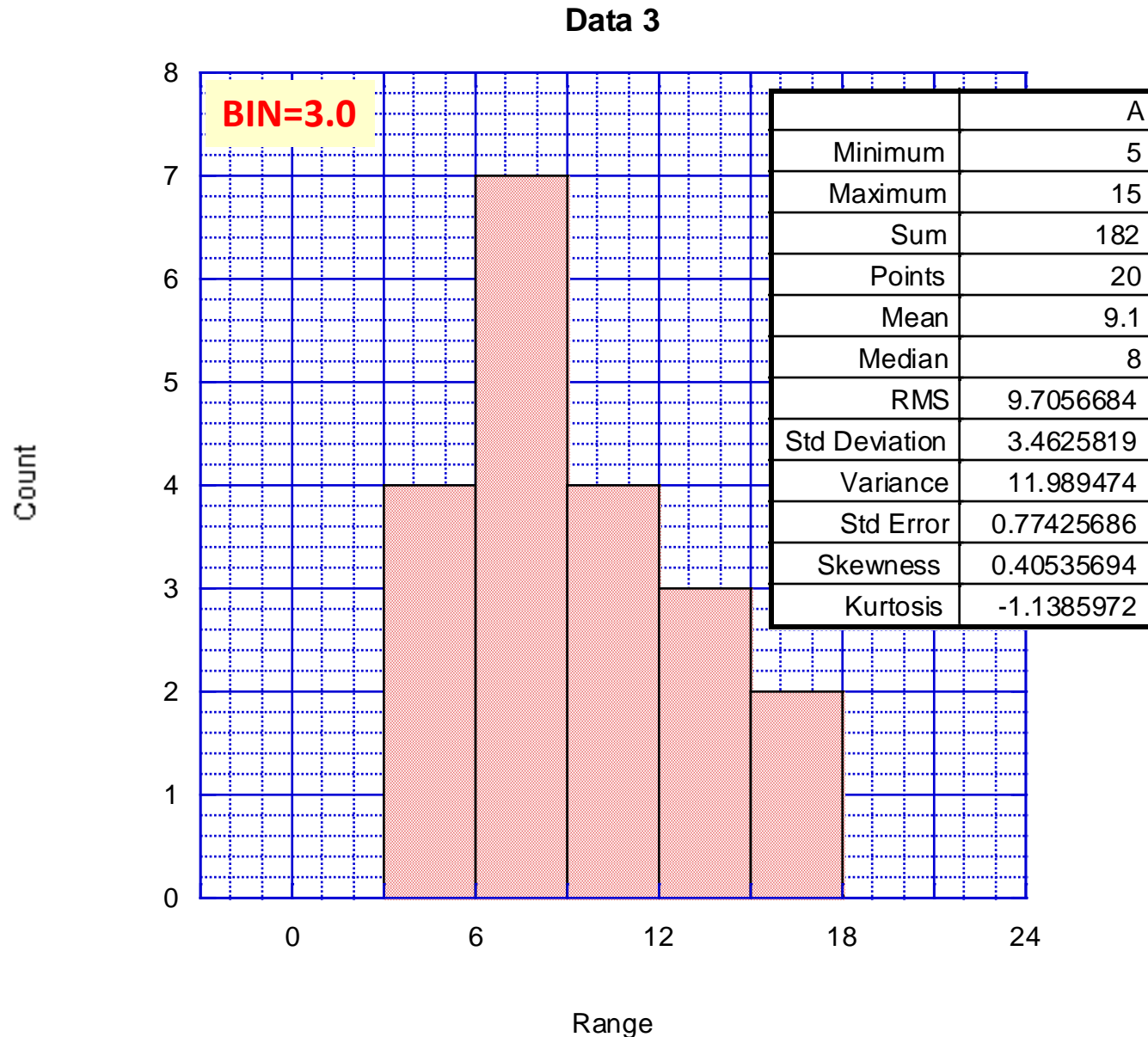
0.0010

 two sided

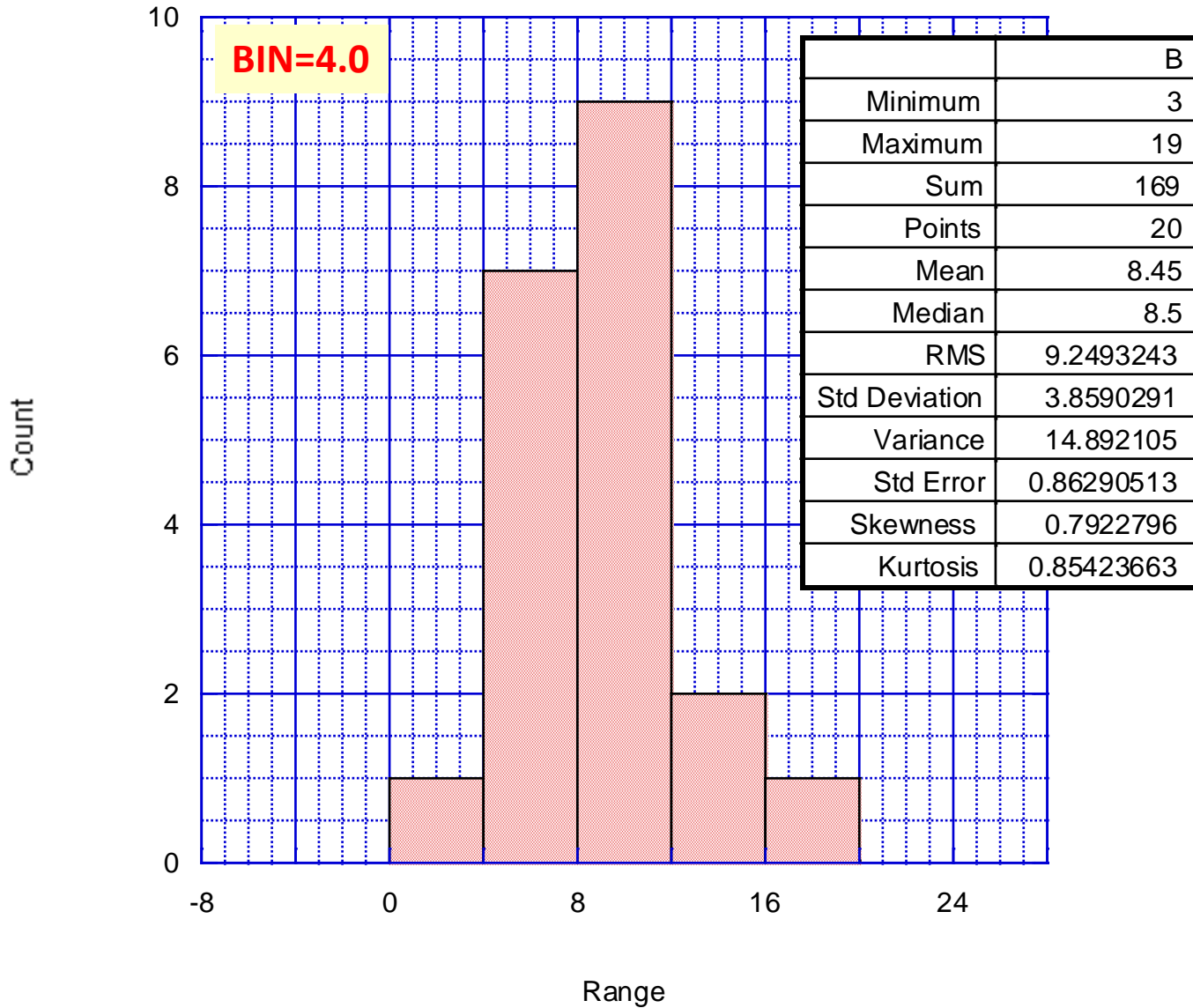
5.0239



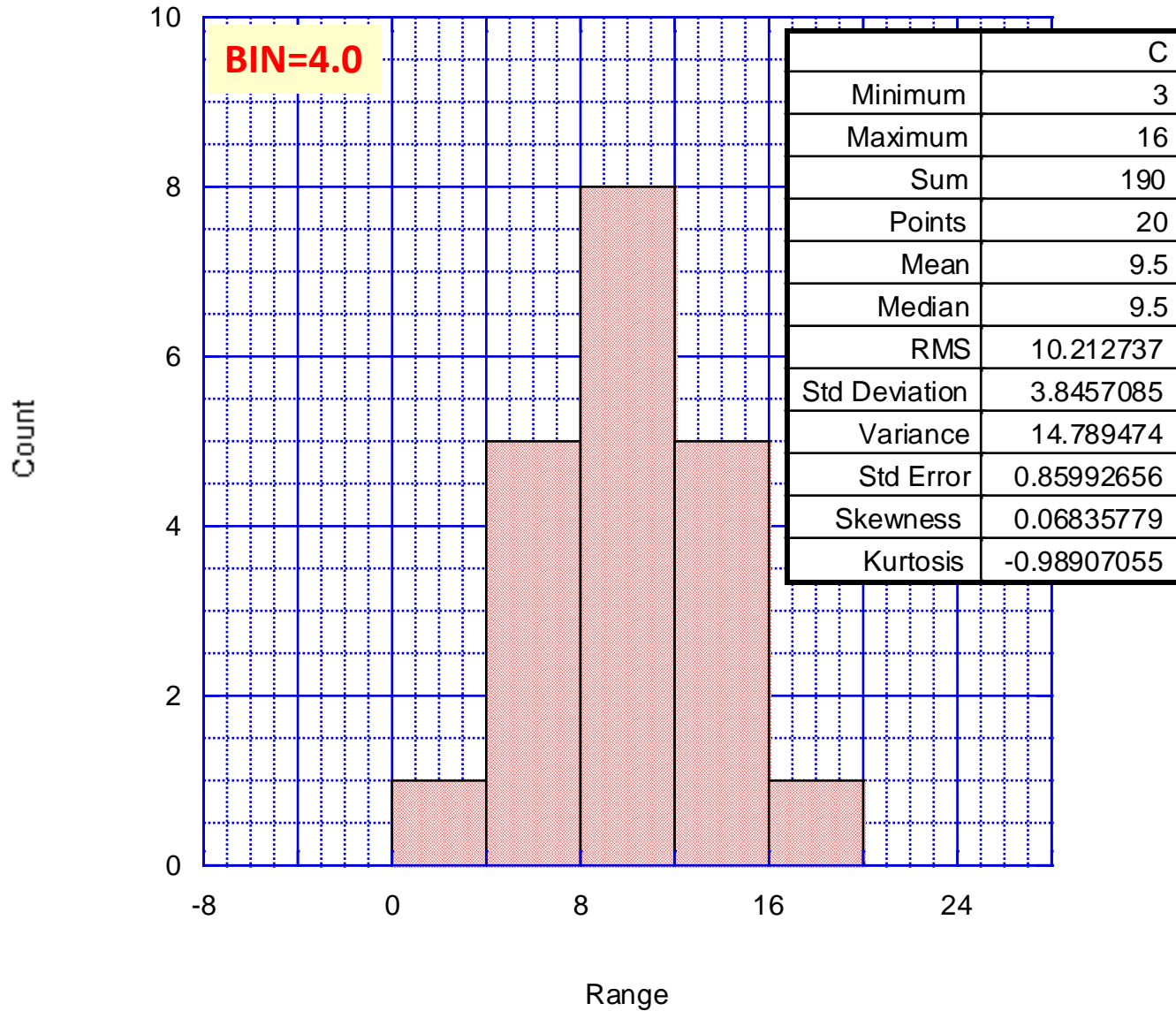
Histo delle misure di un sottogruppo da 20 misure
del sottocampione da 420 misure del campione totale da 301400 misure



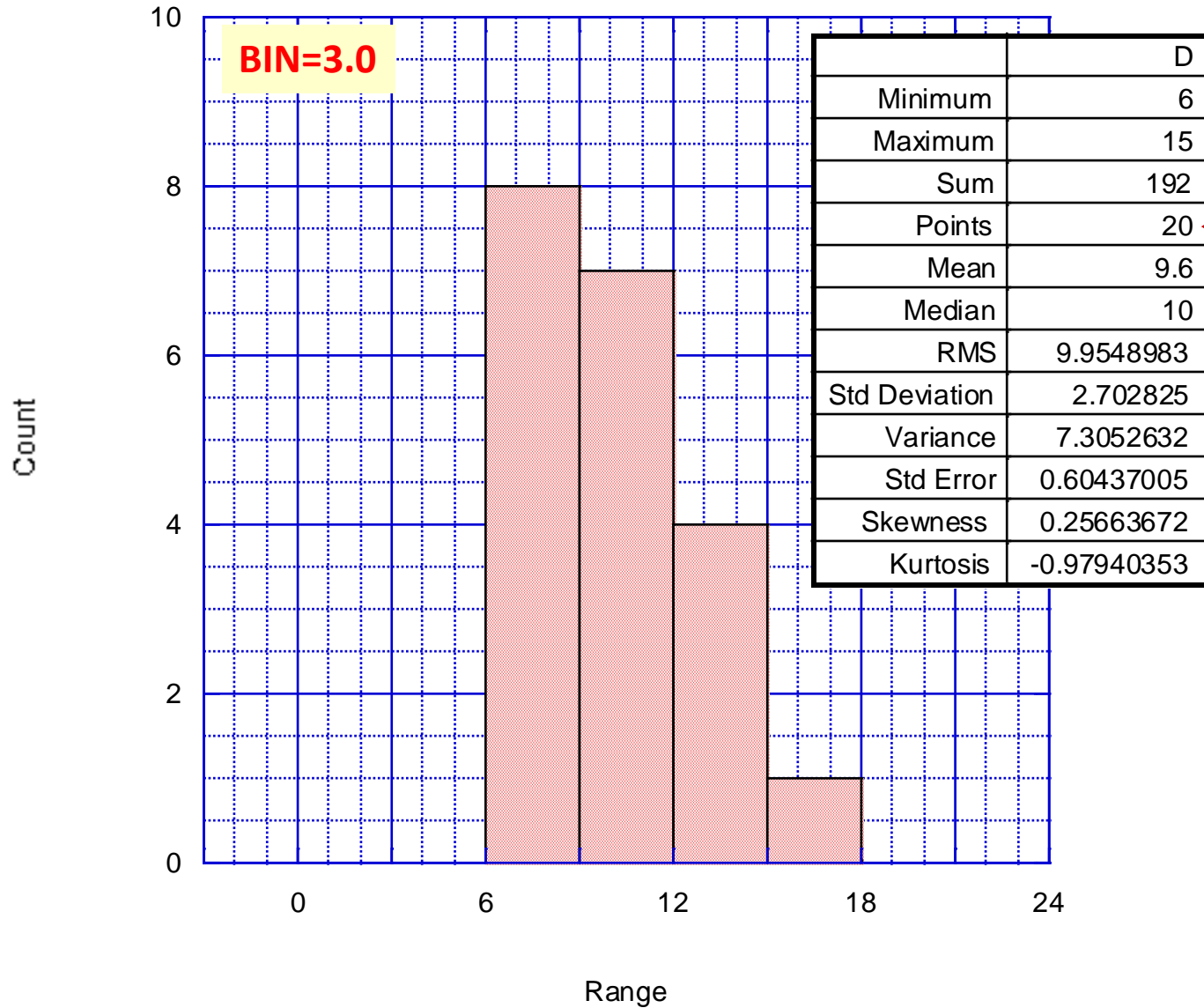
Data 3



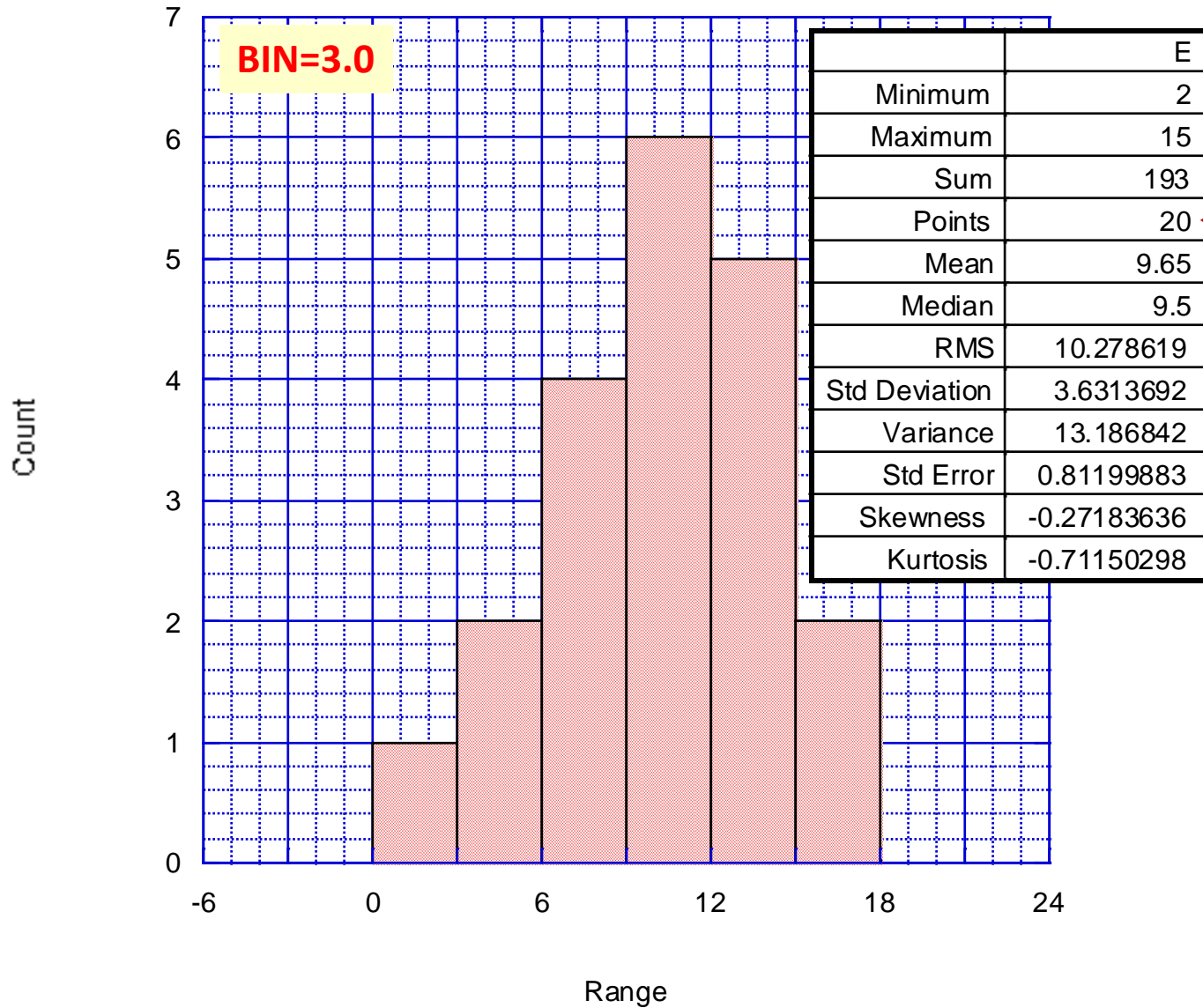
Data 3



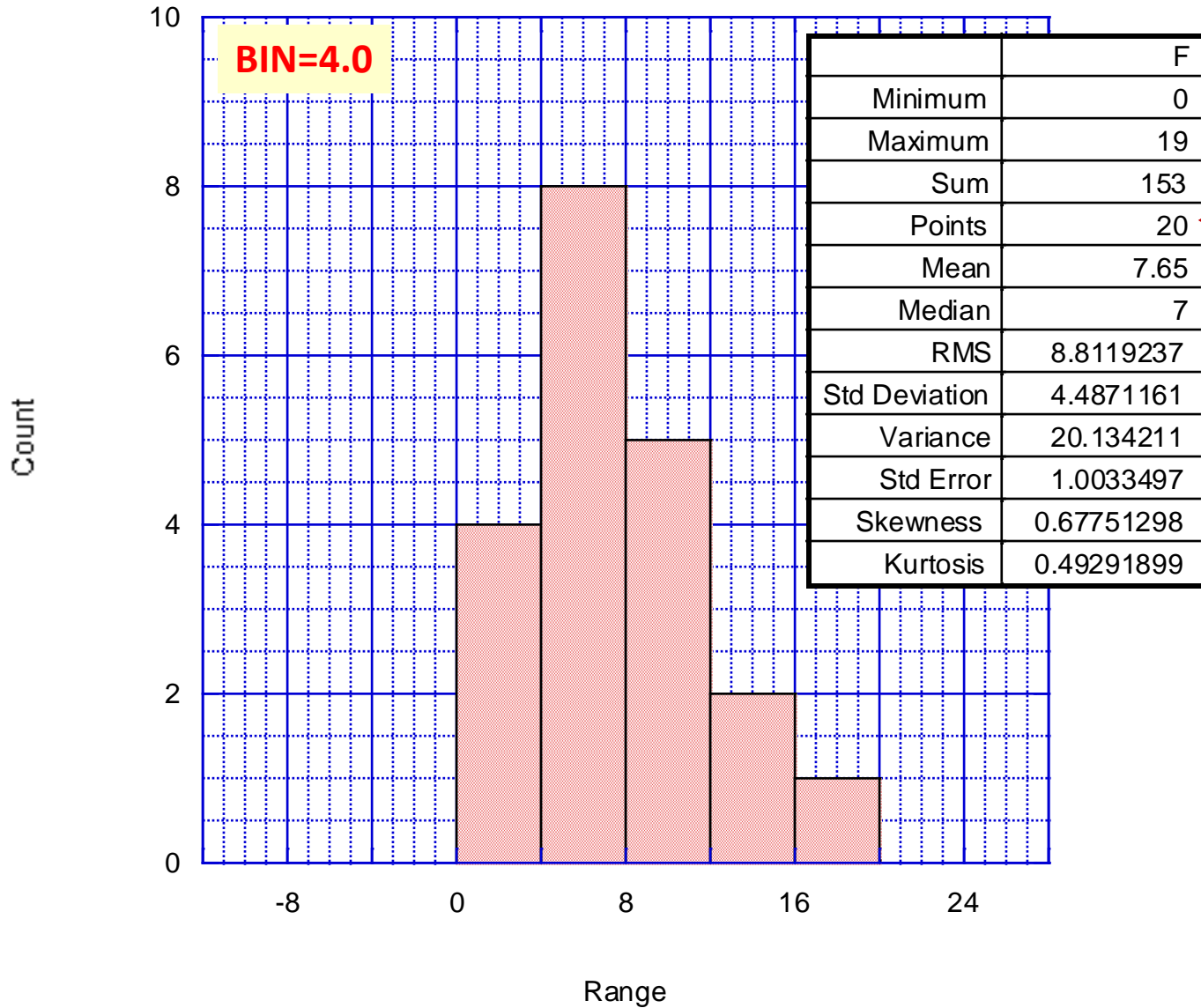
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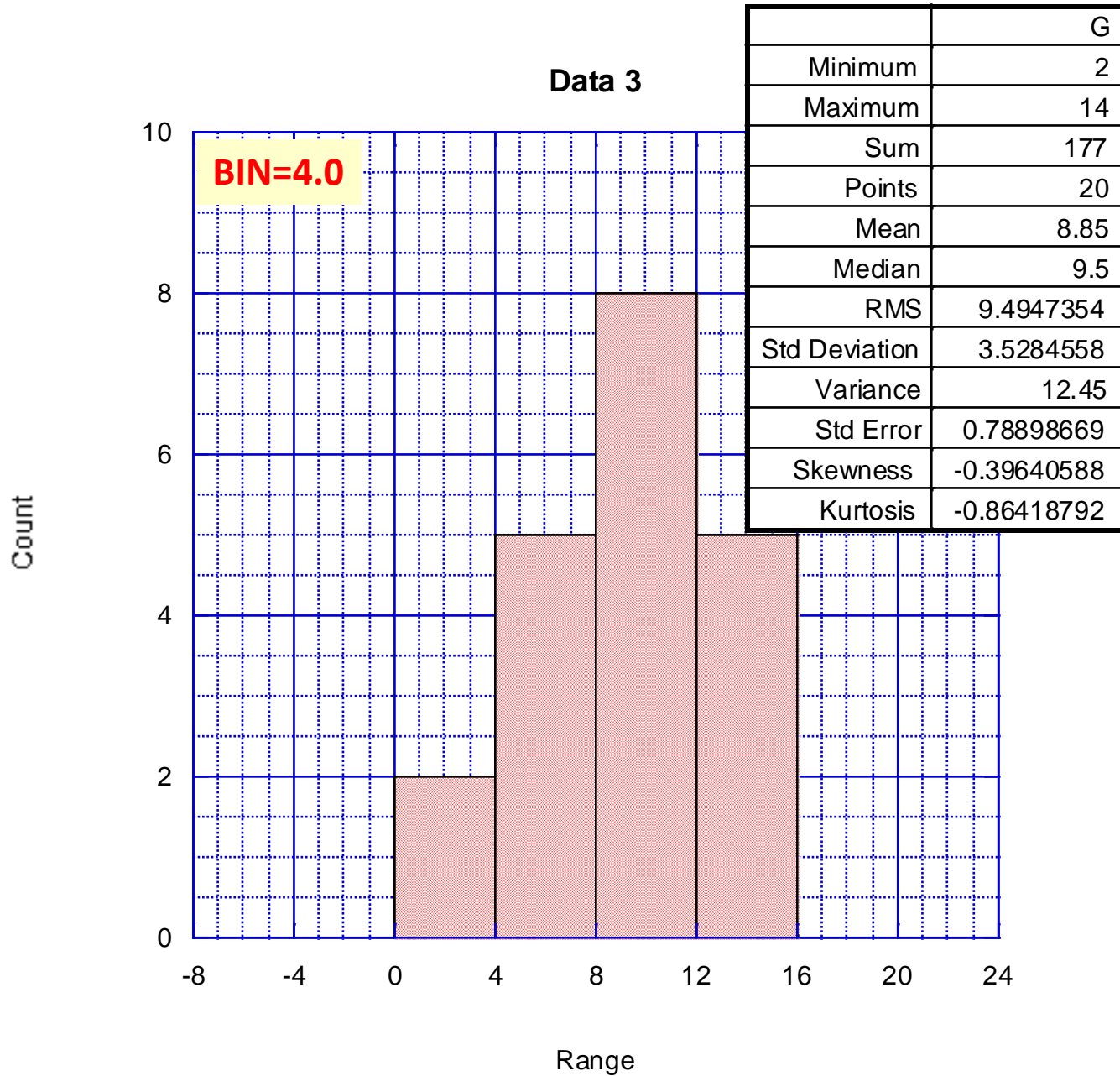


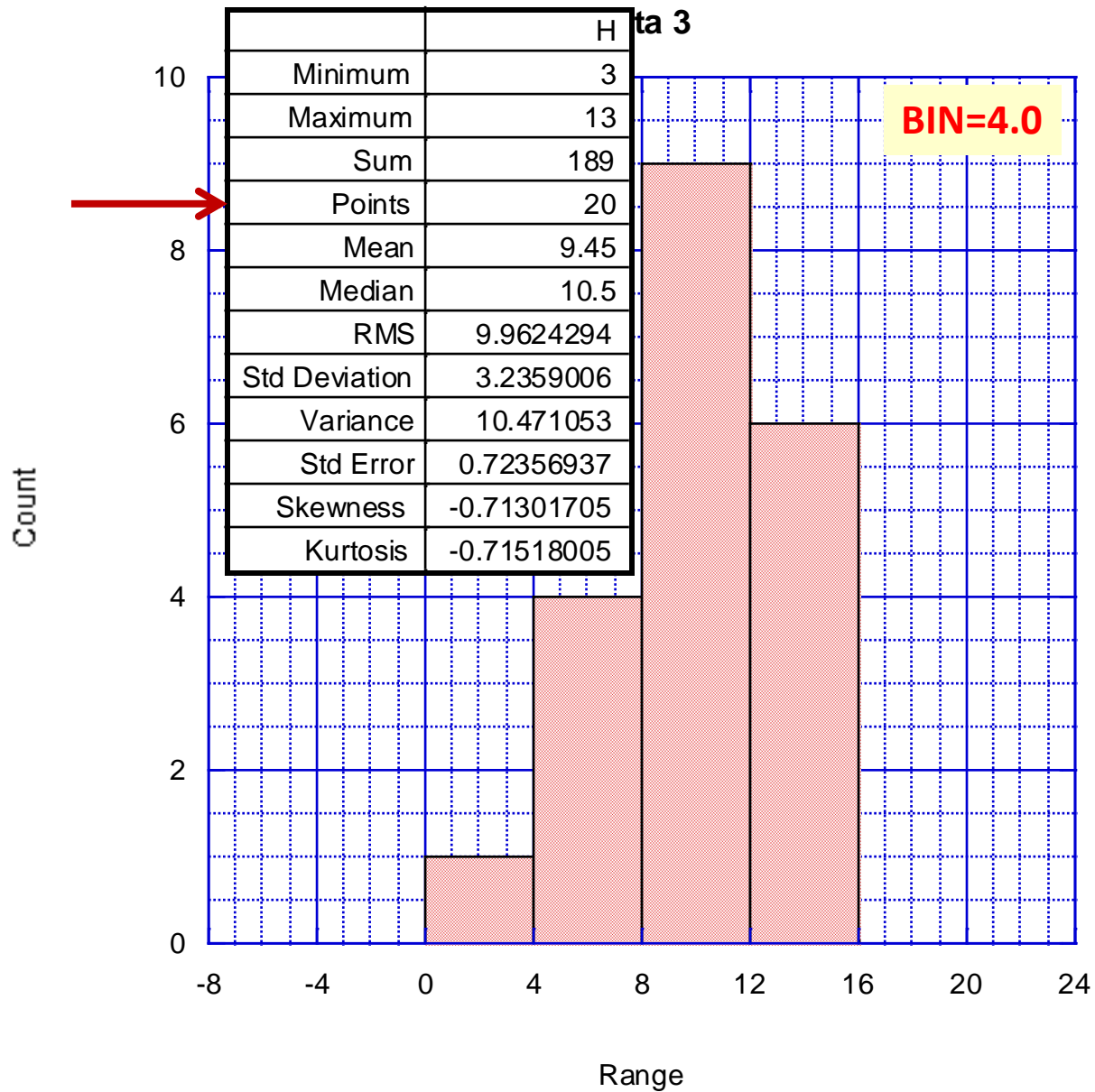
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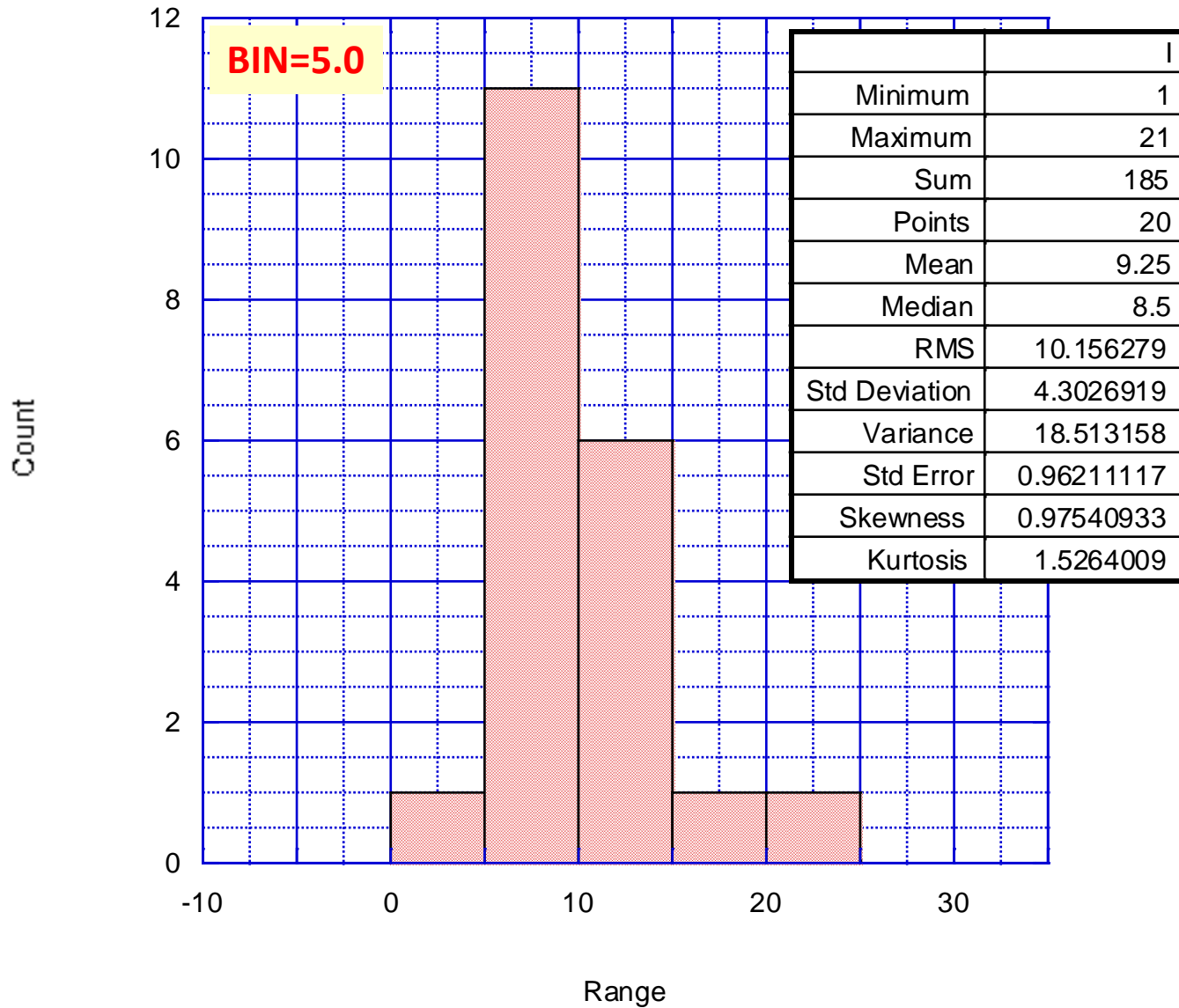
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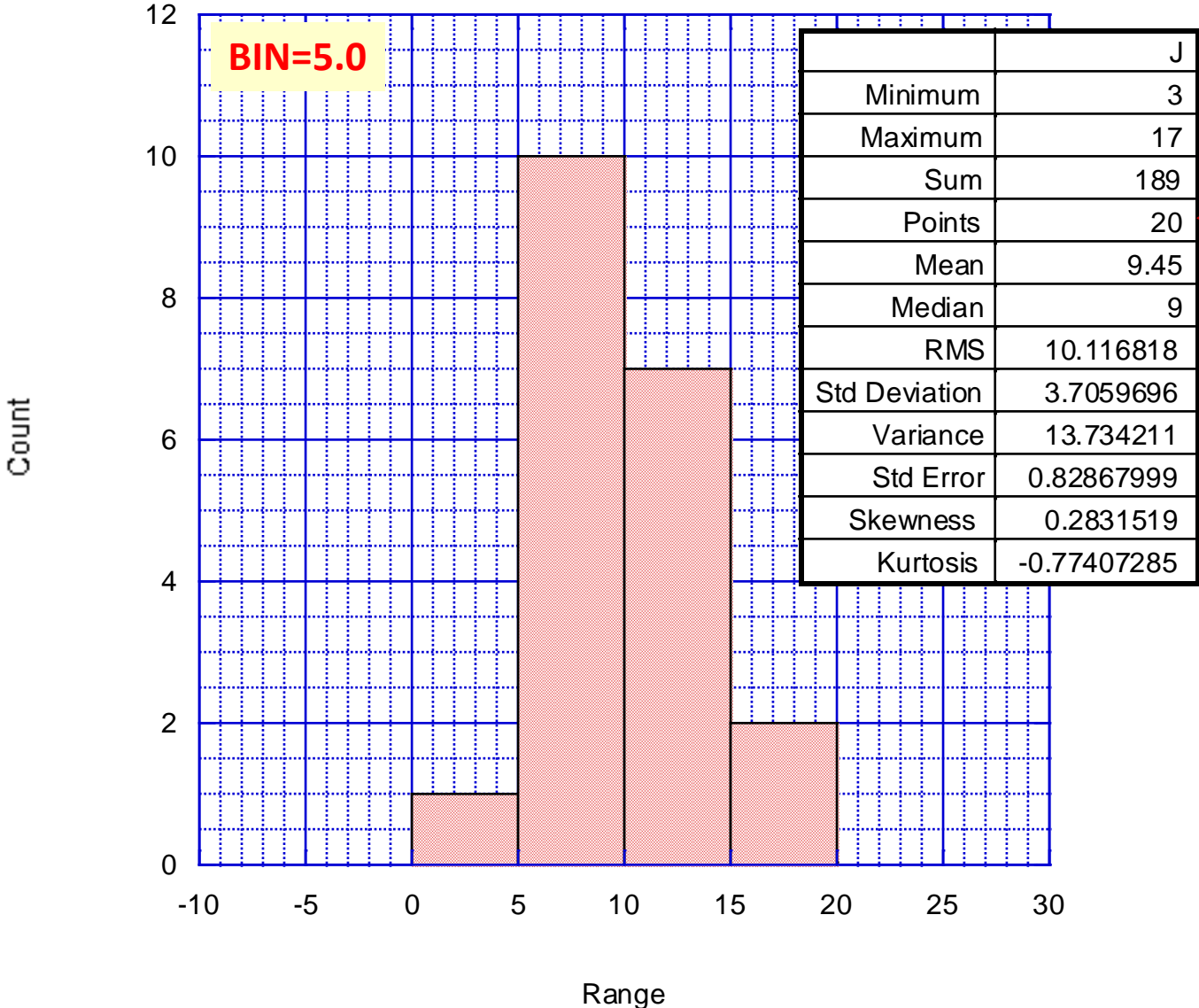


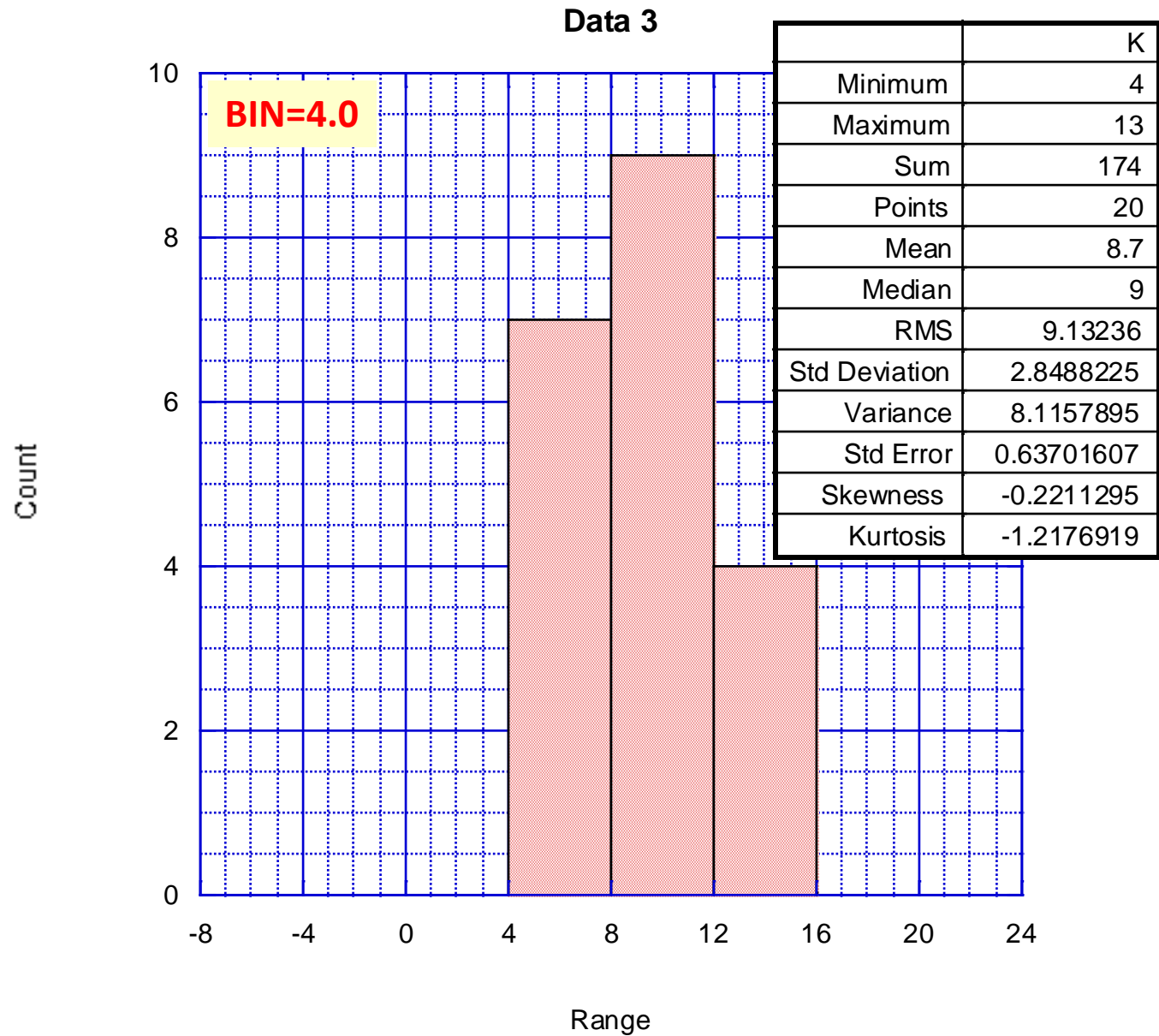


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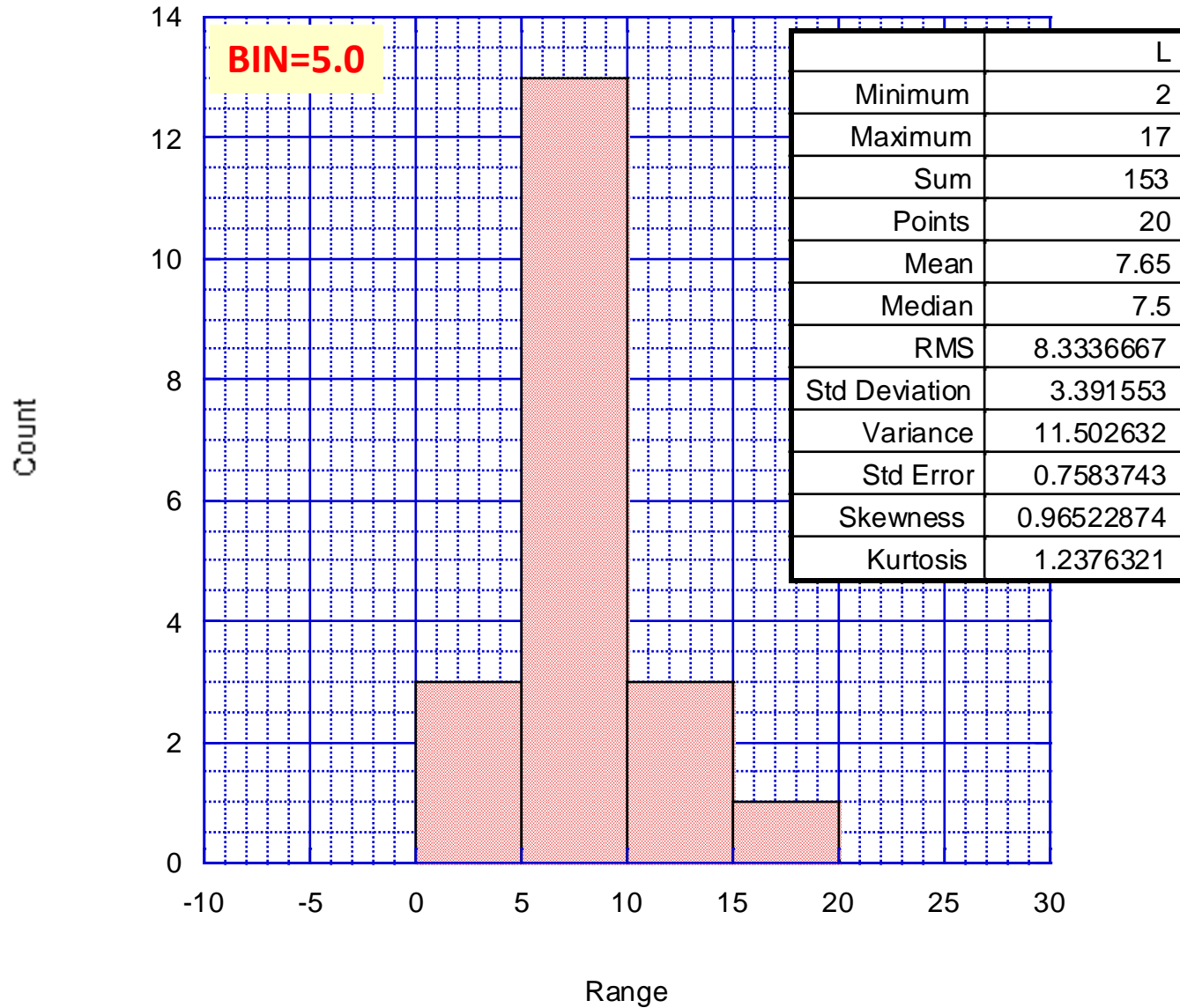


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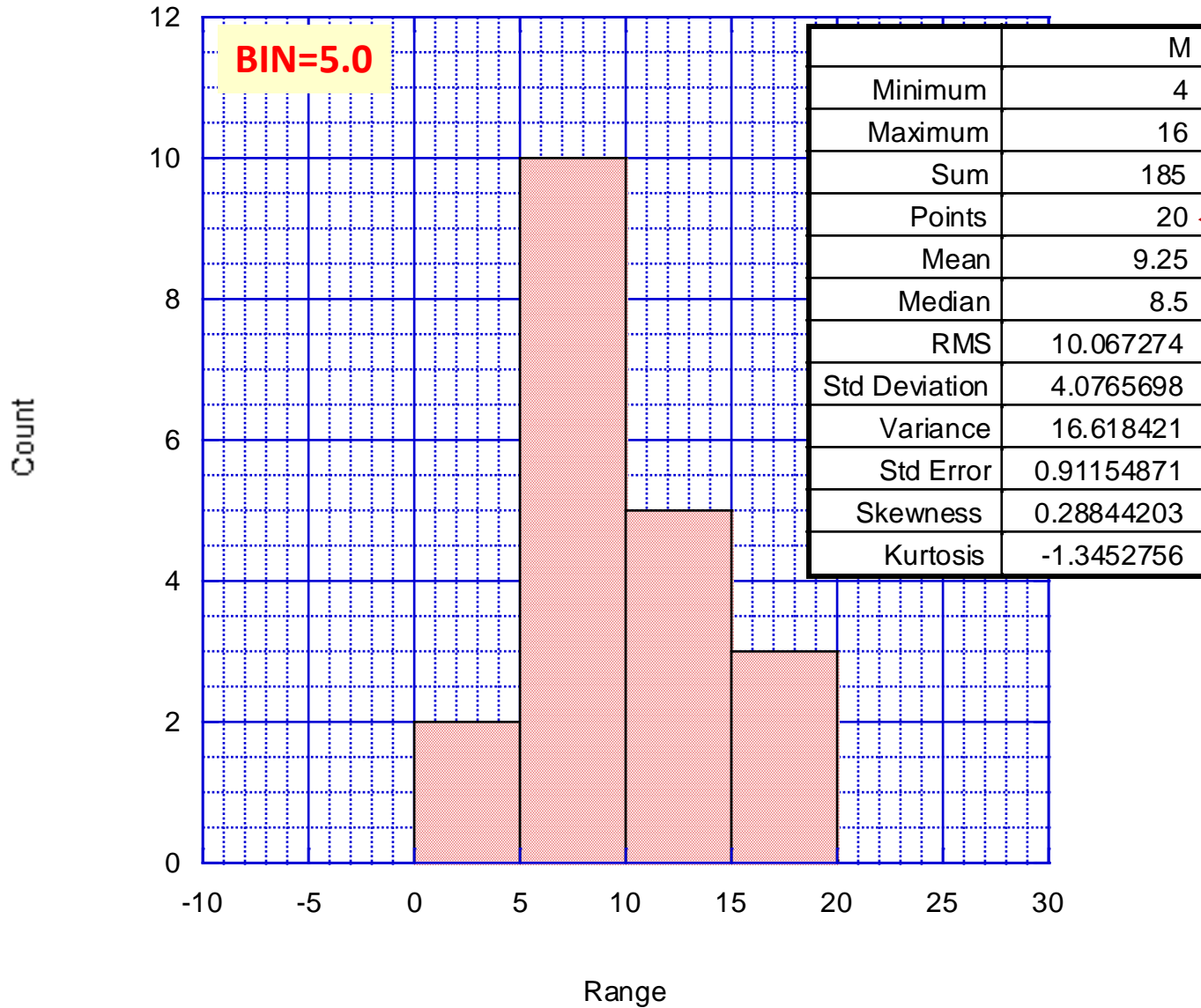




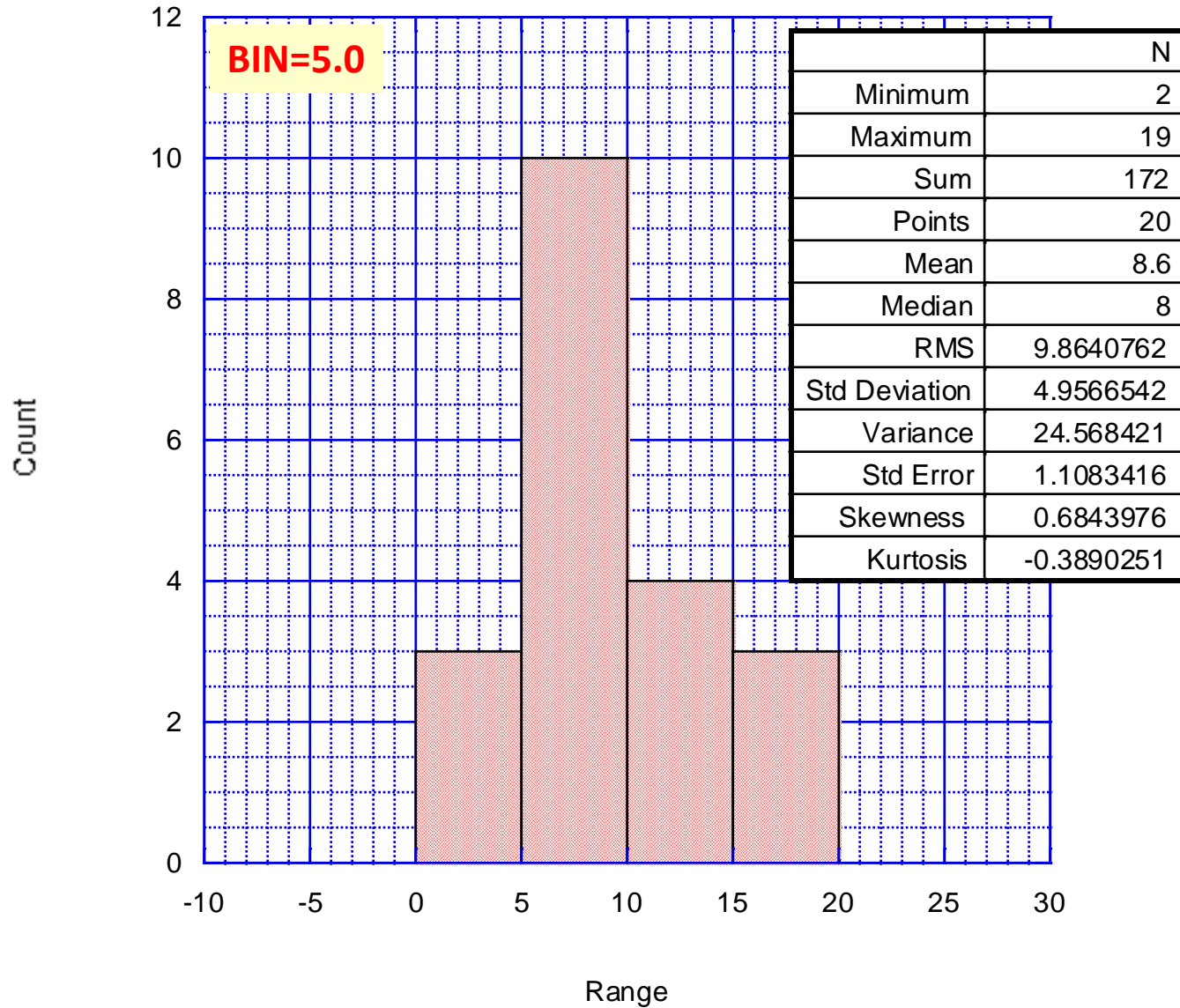
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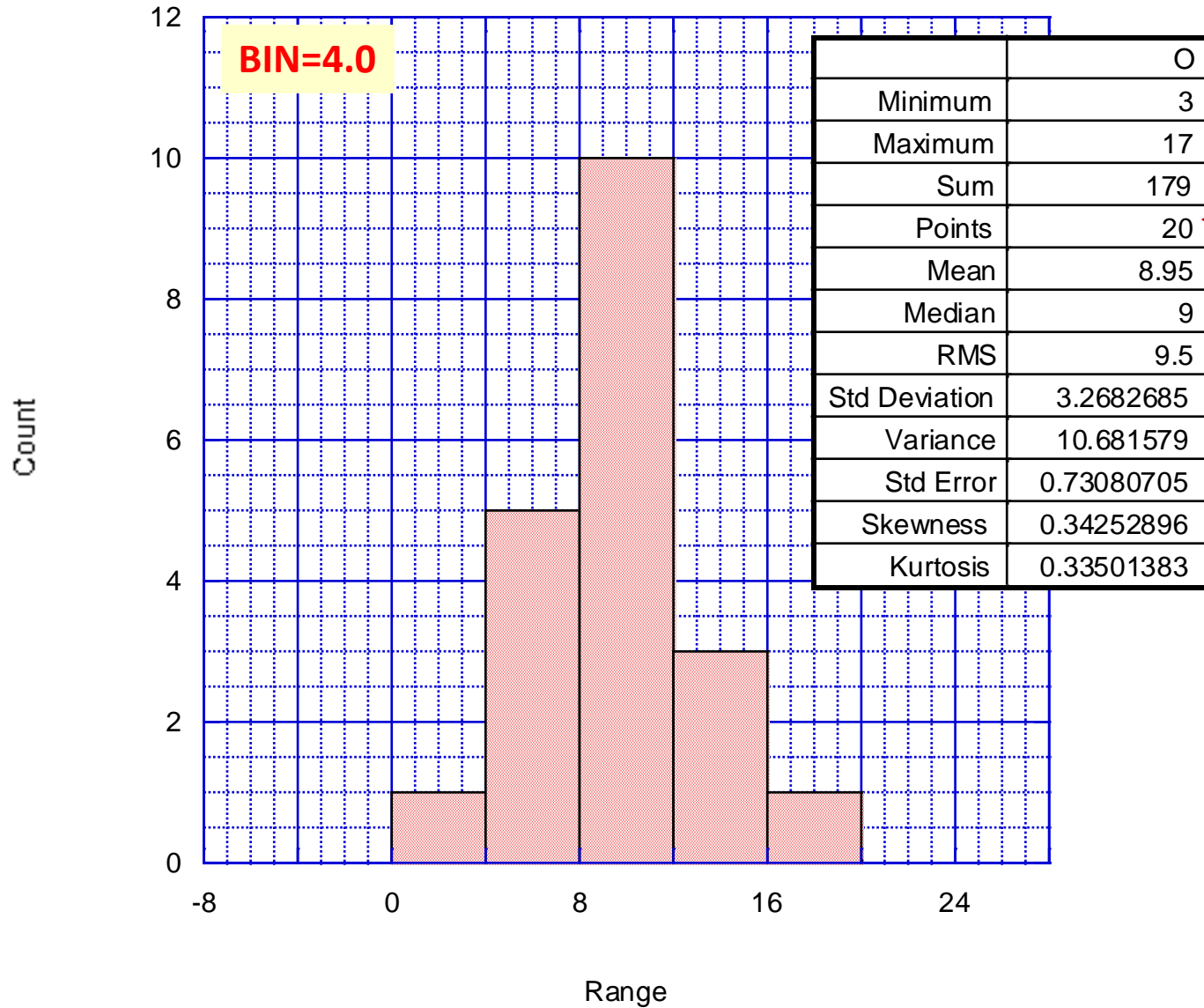
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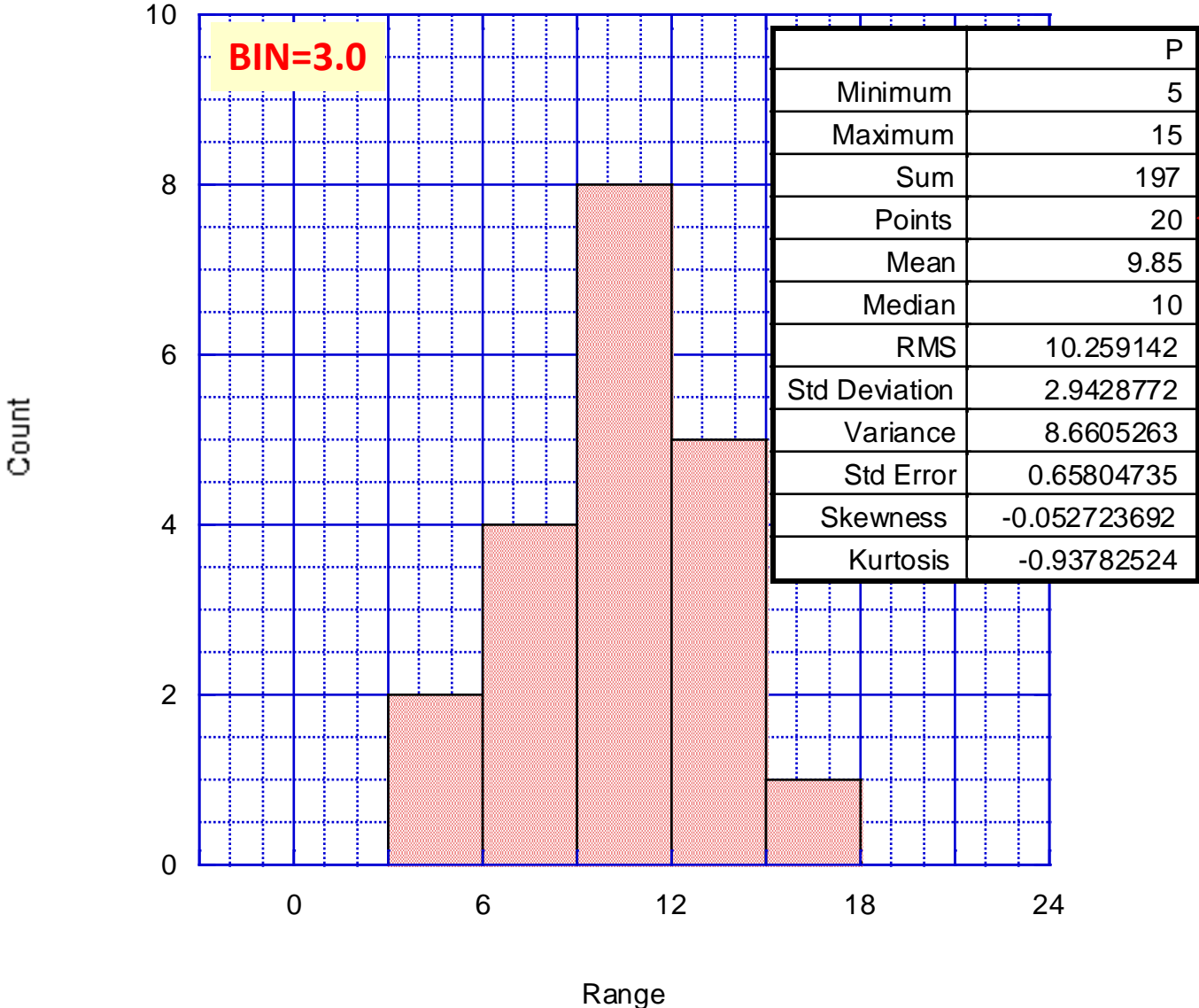
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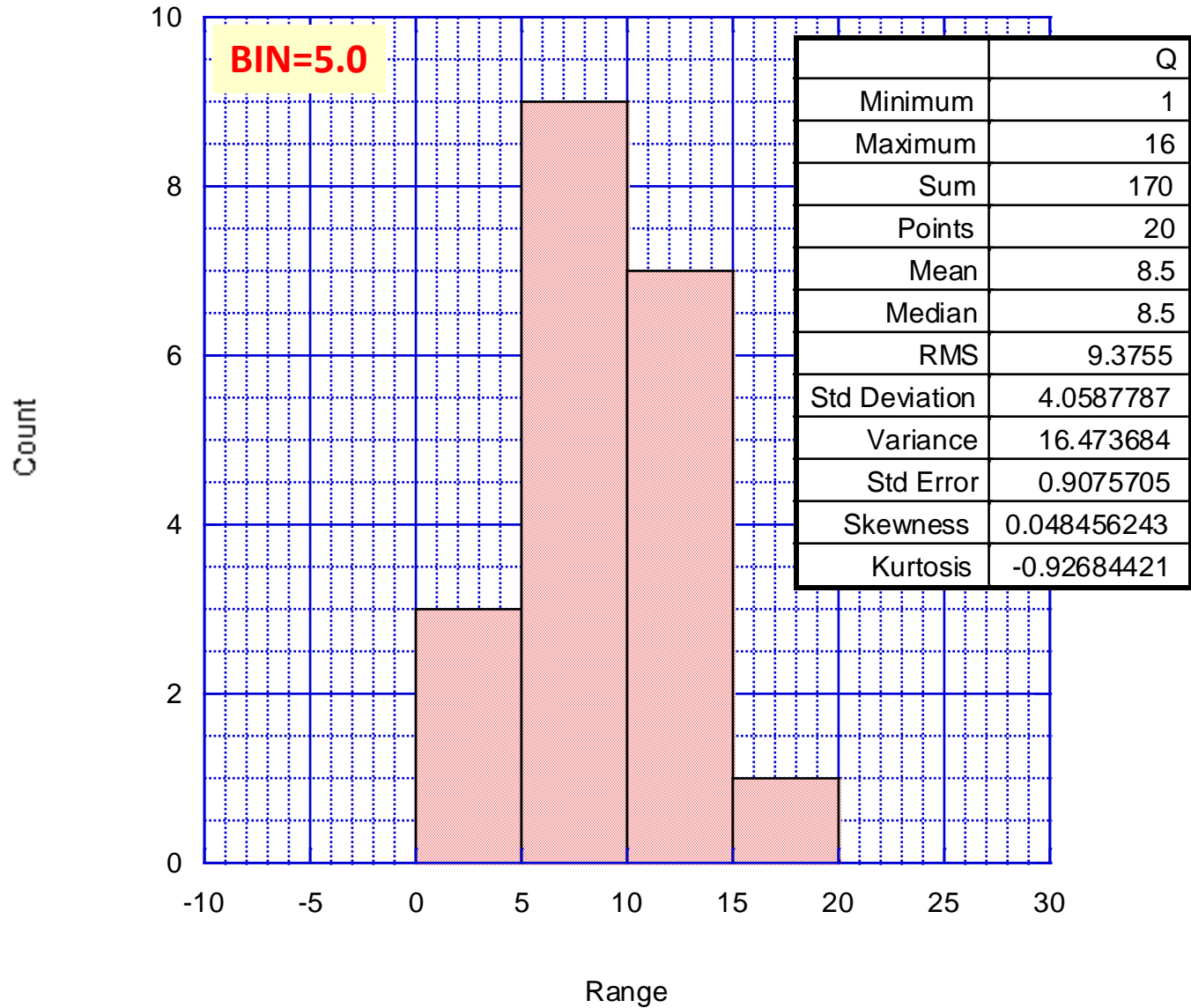
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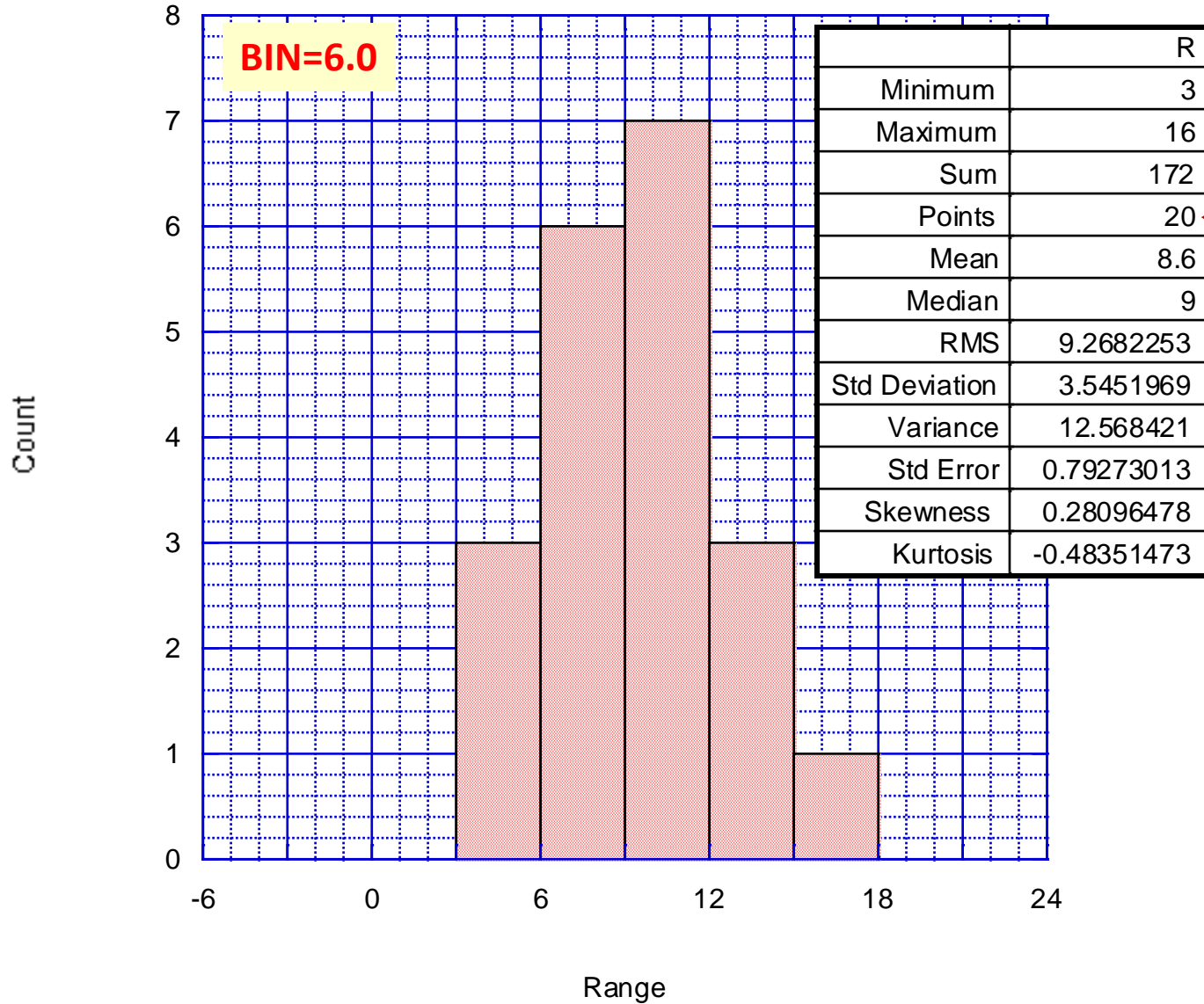
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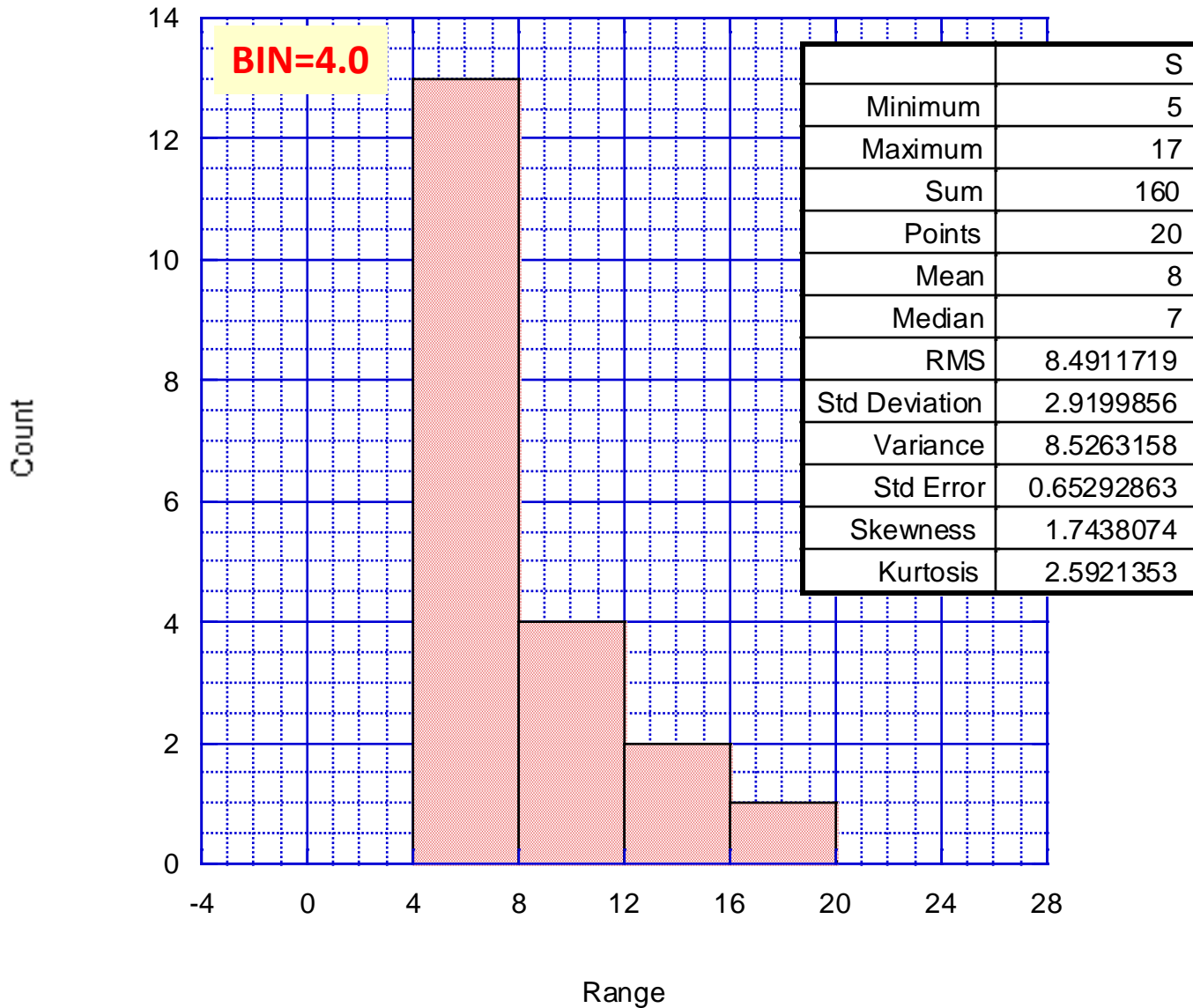
Data 3



Data 3



Data 3



Data 3

