Math 1040 Statistics

Is there a relation between homework scores and test scores?

Lyndsee Cooper
McKell Hadlock
Reem Farrukh
Elin Kiss
Karrina Gero-Limoges

Mymathlab mean				Test scores			
77	9	89	99	**75**	73	58	56
100	84	97	91	**100**	57	66	71
100	71	76	98	**100**	43	88	86
100	89	89	81	**90**	67	51	28
100	89	83	98	**60**	77	29	86
90	78	74	90	**60**	47	12	74
99	62	62	80	**70**	88	71	78
100	99	74	97	**59**	45	74	66
97	56	91	81	**80**	61	54	67
96	86	81	96	**72**	12	75	89
90	59	95	90	**73**	66	68	60
92	89	89	85	**76**	70	66	71
89	92	95	86	**72**	69	74	68
100	84	80	77	**85**	88	45	80
98	100	86	96	**94**	21	91	75
93	19	90	97	**77**	40	63	56
85	81	79	82	**59**	43	64	80

Homework Statistics

Mean		85.96			
Standard Variation		3.97			
Standard Deviation		15.76			
Five-number Summary	Minimum	Q1	Median	Q3	Maximum
	9	81	89.5	97	100
Range		91			
Mode		100			
Upper Fence		121			
Lower Fence		57			
Outliers		9,56,19			

Test Statistics

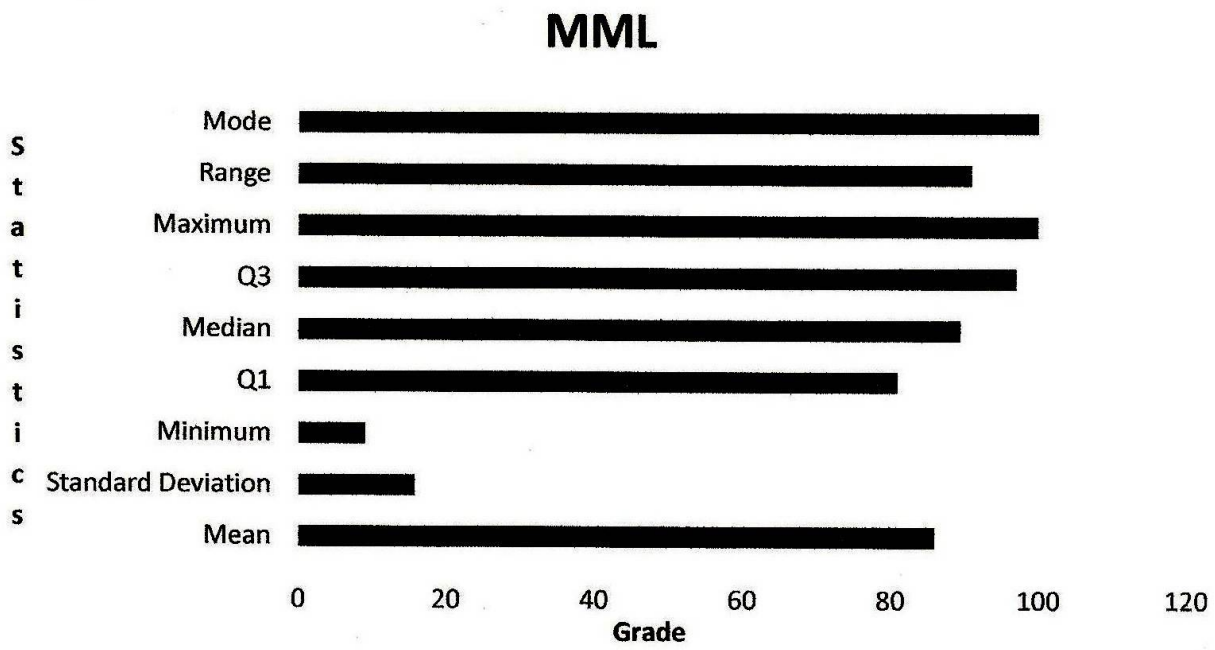
Mean	67.6
Standard Variation	4.29
Standard Deviation	18.4

Five-number Summary	Minimum	Q1	Median	Q3	Maximum
	12	59.38	70.5	76.96	100

Range	88
Mode	60
Upper Fence	103.33
Lower Fence	33
Outliers	12,21,29,12,28

Statistics Histogram-Homework

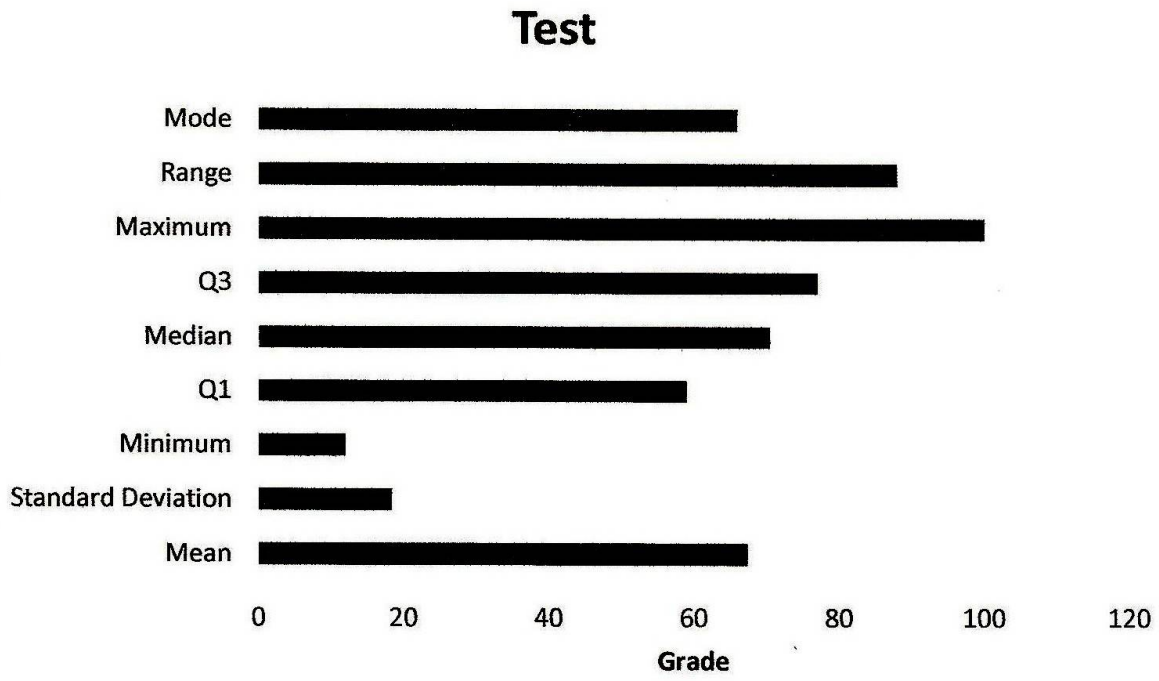
	MML
Mean	85.99
Standard Deviation	15.78
Minimum	9
Q1	81
Median	89.5
Q3	97
Maximum	100
Range	91
Mode	100
IQR	16
Lower Fence	57
Upper Fence	121
Outliers	9, 56, 19

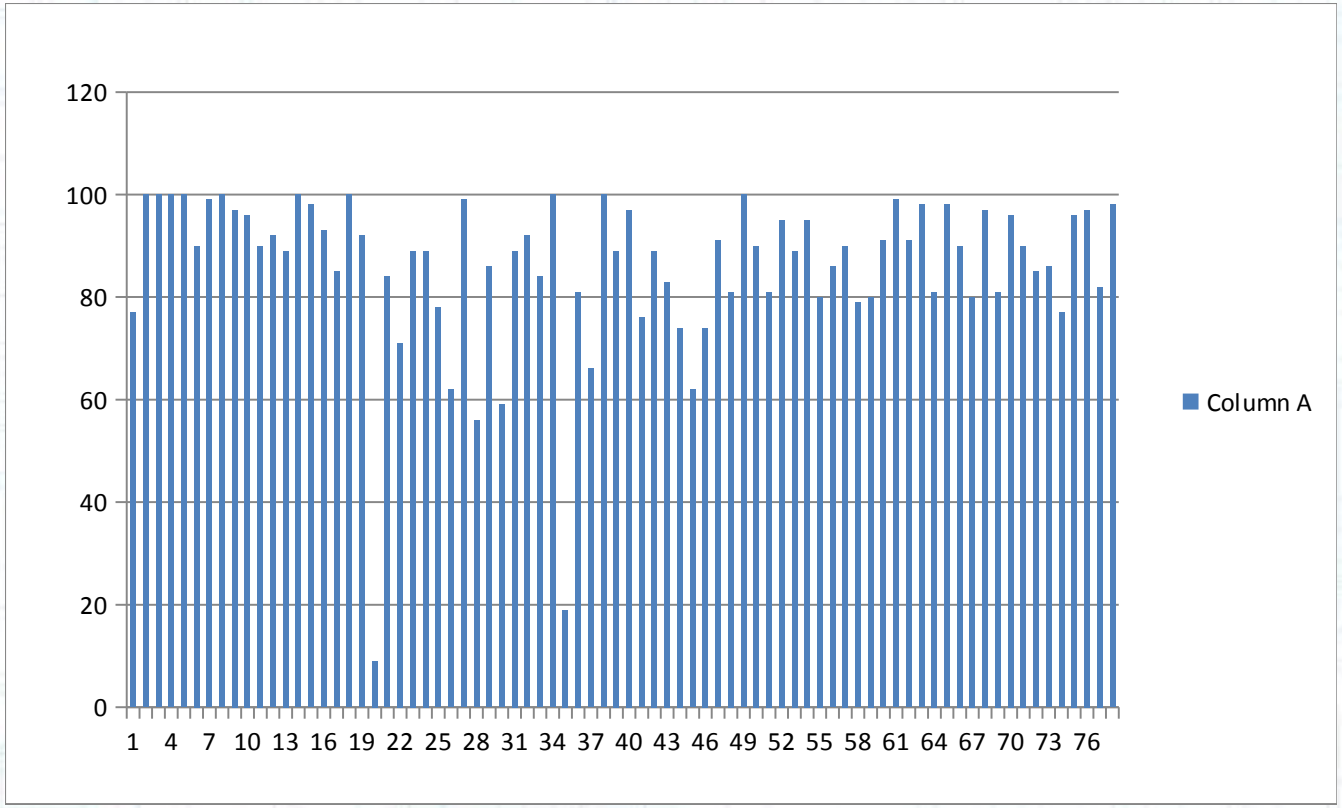


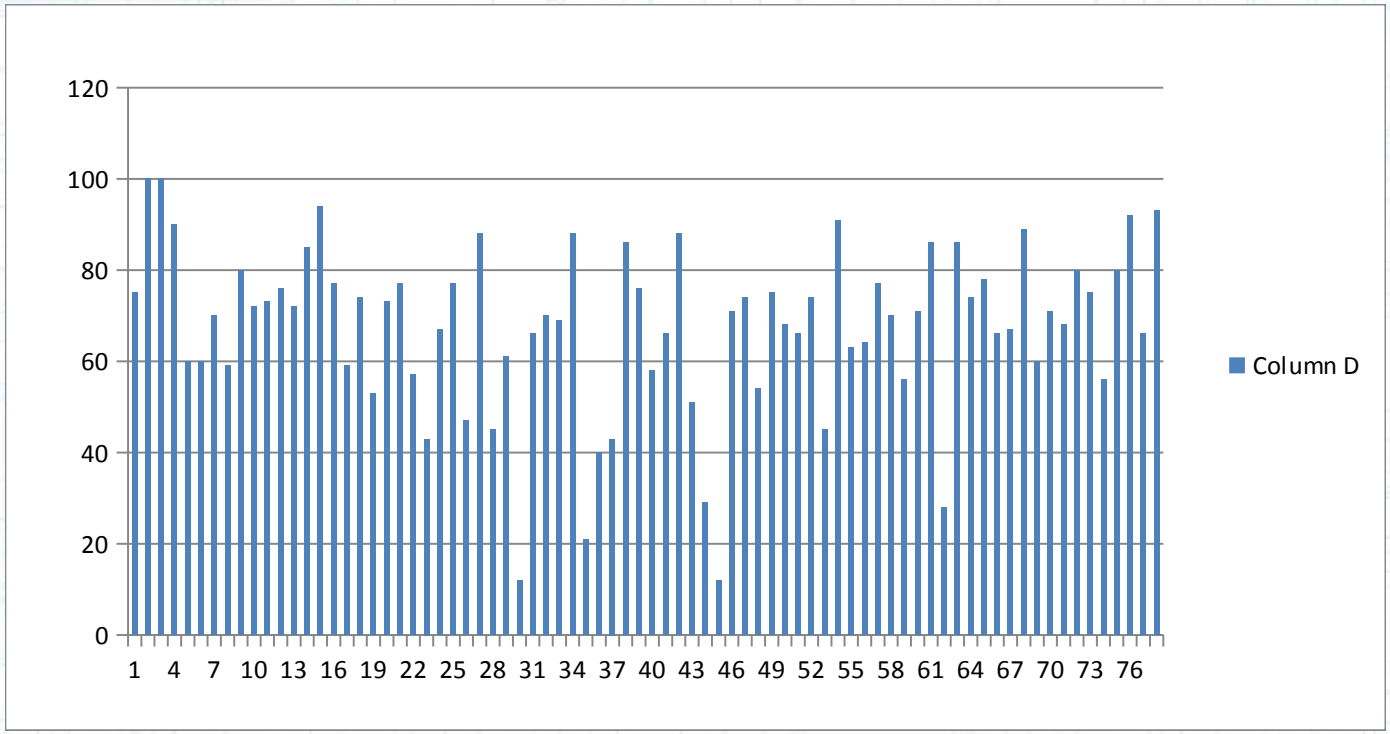
Statistics Histogram-Tests

	Test
Mean	67.47
Standard Deviation	18.42
Minimum	12
Q1	59
Median	70.5
Q3	77
Maximum	100
Range	88
Mode	66
IQR	18
Lower Fence	32
Upper Fence	104
Outliers	12 ,21, 29, 12, 28

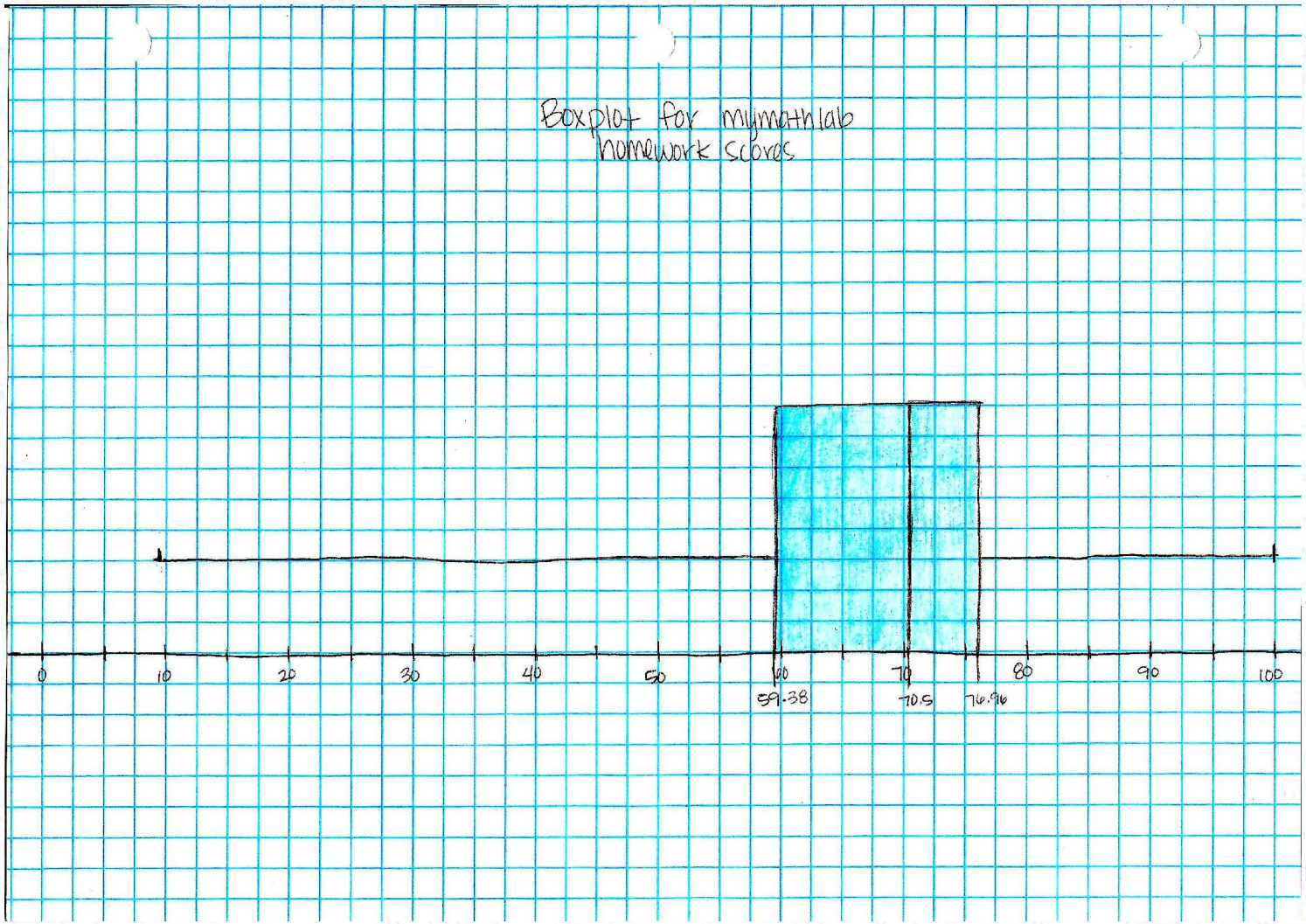
Statistics



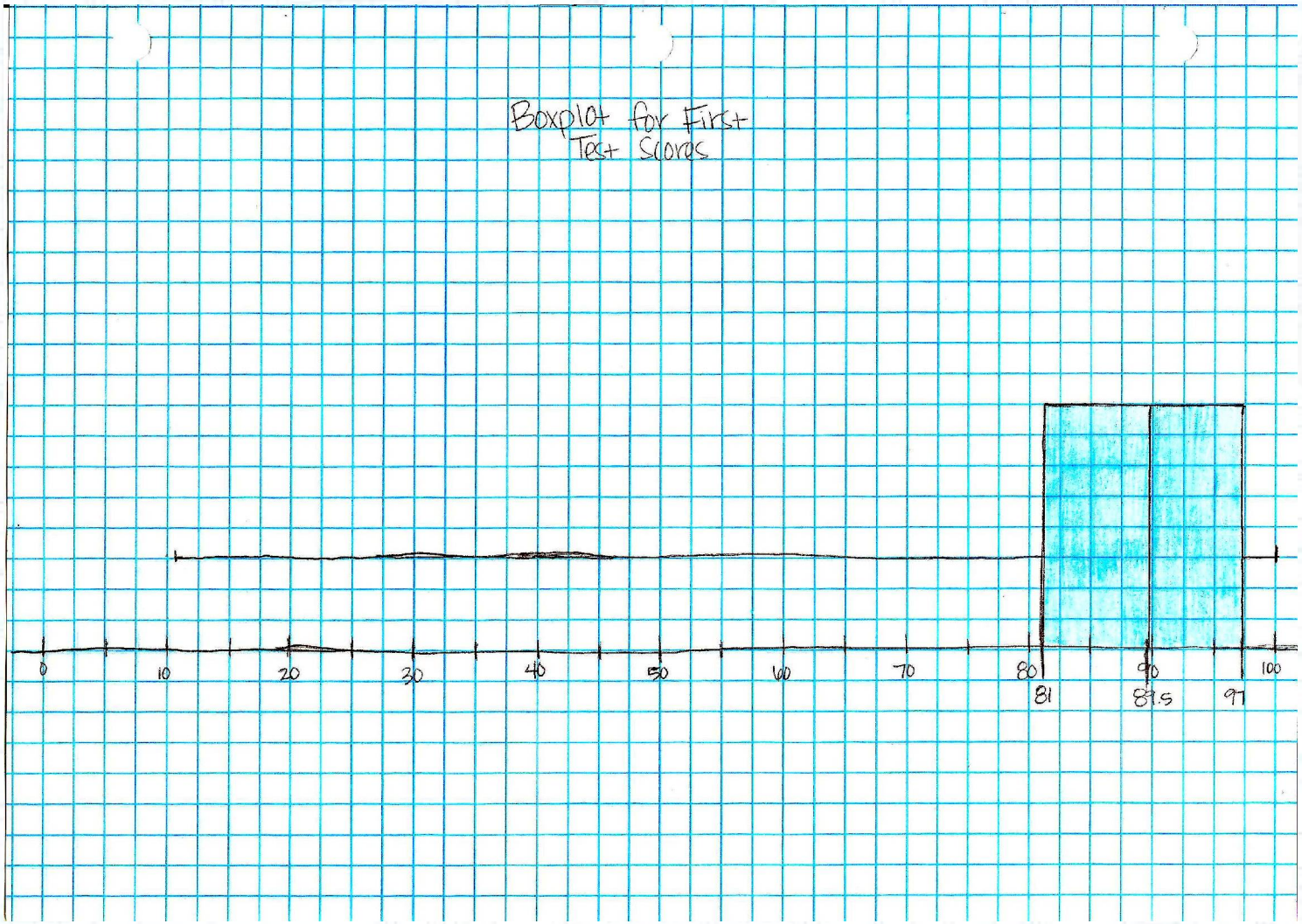

120
100
80
60
40
20
0
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76
Column A


120
100
80
60
40
20
0
1 4 7 10 13 16 19 22 25 28 31 34 37 40 43 46 49 52 55 58 61 64 67 70 73 76
Column D

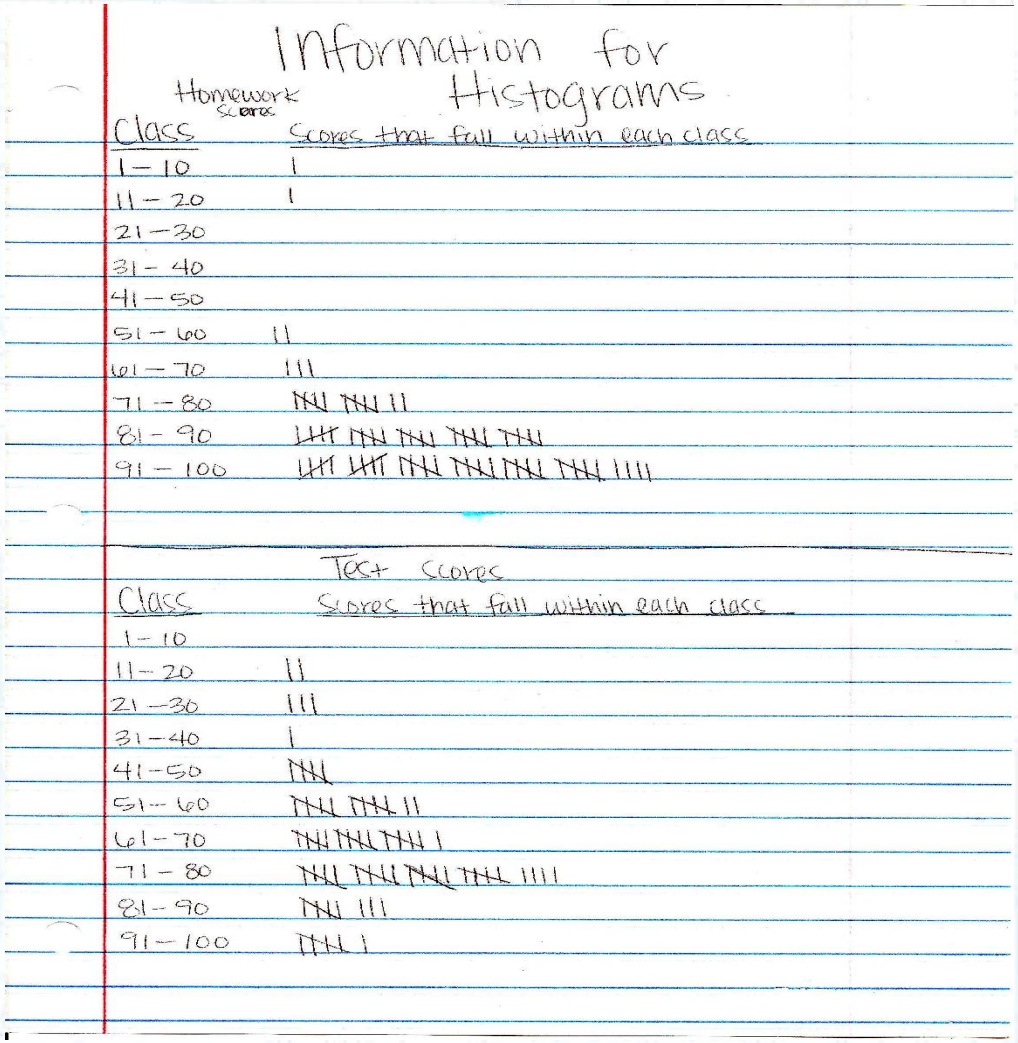
Homework Boxplot



Test Boxplot



Information for Frequency Histograms



Information for Histograms

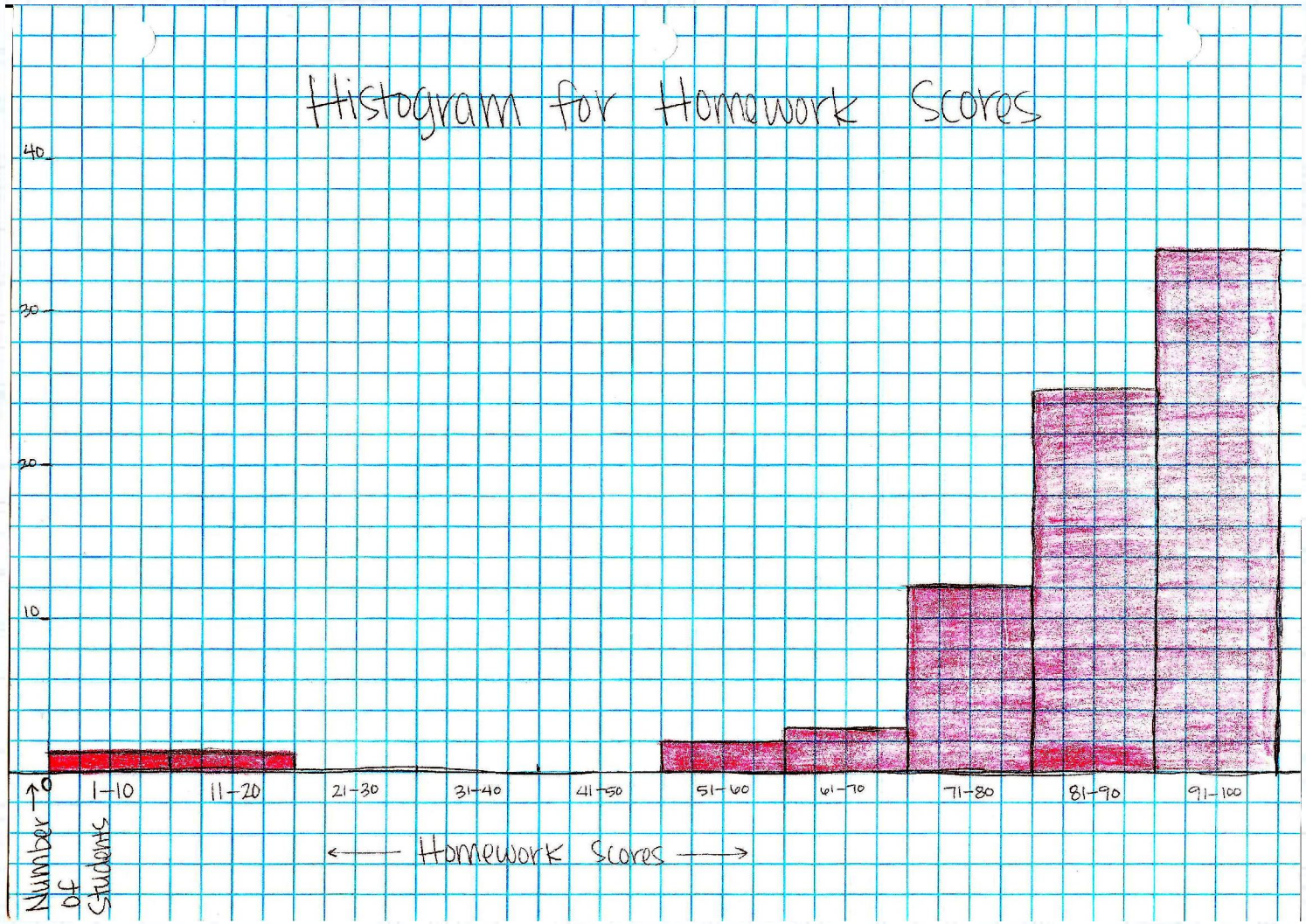
Homework scores

Class	Scores that fall within each class
1–10	1
11–20	1
21–30	
31–40	
41–50	
51–60	11
61–70	111
71–80	𝍸 𝍸 11
81–90	𝍸 𝍸 𝍸 𝍸 𝍸
91–100	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 1111

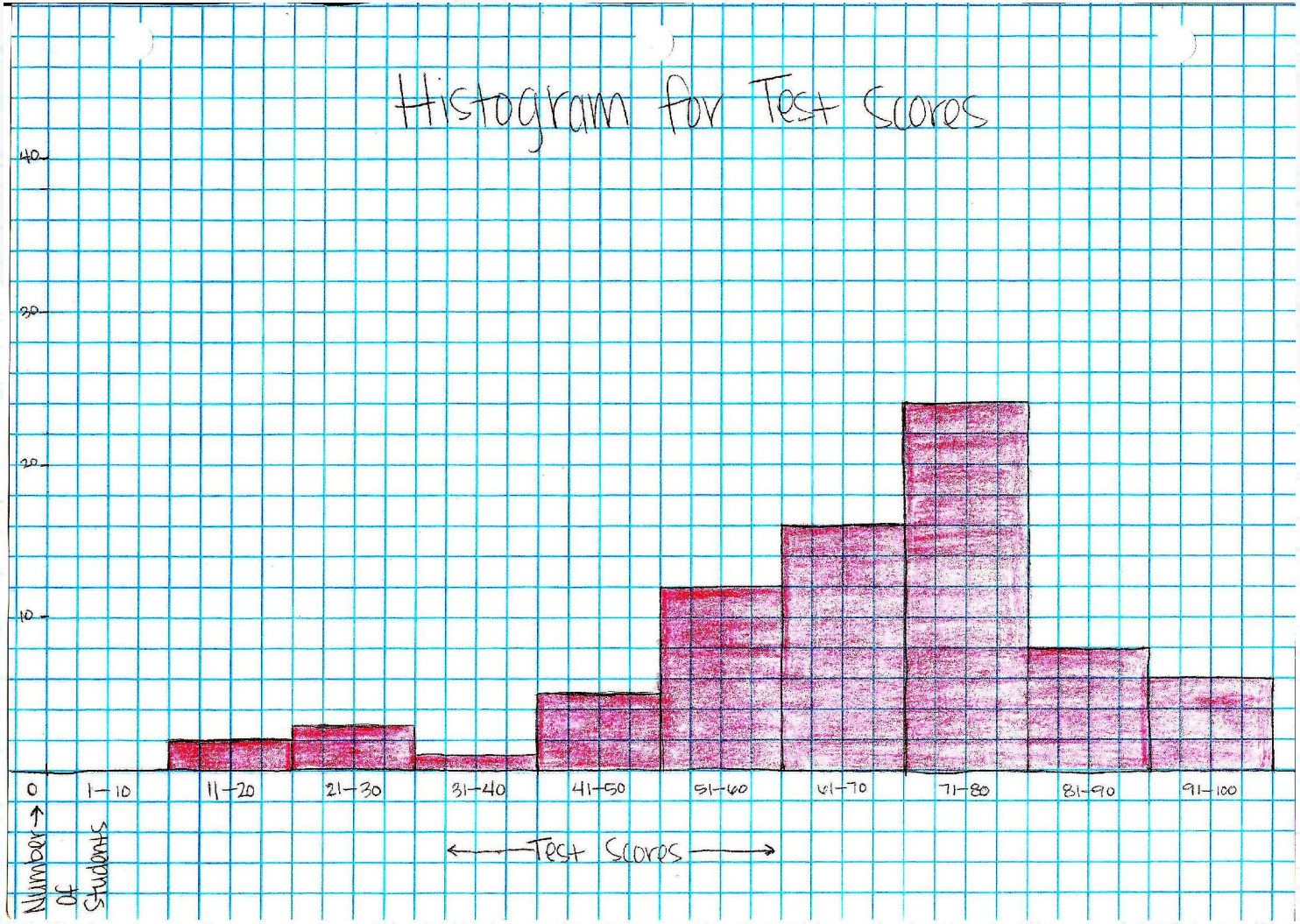
Test scores

Class	Scores that fall within each class
1–10	
11–20	11
21–30	111
31–40	1
41–50	𝍸
51–60	𝍸 𝍸 11
61–70	𝍸 𝍸 𝍸 1
71–80	𝍸 𝍸 𝍸 𝍸 1111
81–90	𝍸 111
91–100	𝍸 1

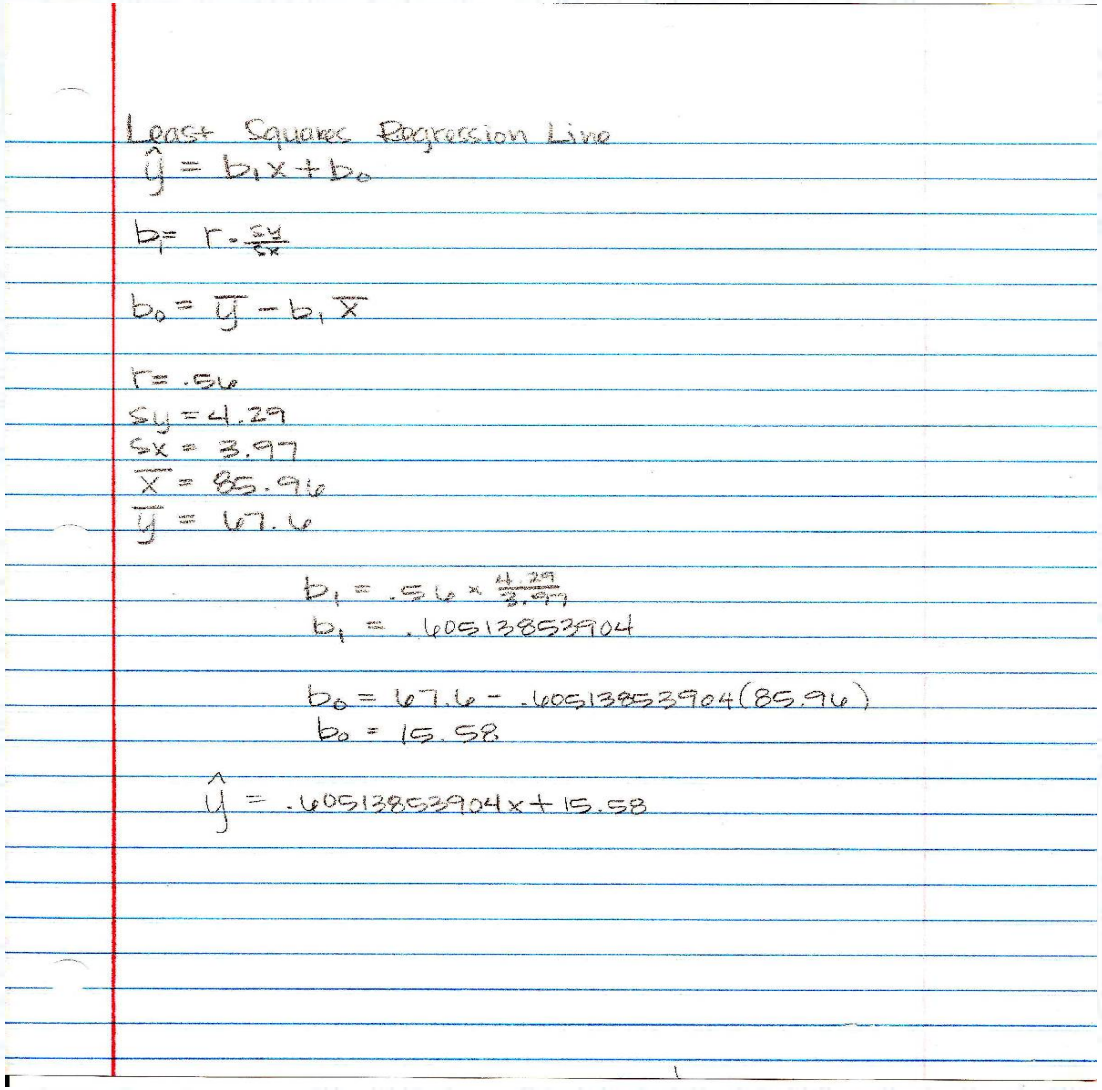
Frequency Histogram-Homework



Frequency Histogram-Tests



Least Squares Regression Equation



Least Squares Regression Line

$\hat{y} = b_1 x + b_0$

$b_1 = r \cdot \frac{s_y}{s_x}$

$b_0 = \bar{y} - b_1 \bar{x}$

$r = .56$

$s_y = 4.29$

$s_x = 3.97$

$\bar{x} = 85.96$

$\bar{y} = 67.6$

$b_1 = .56 \times \frac{4.29}{3.97}$

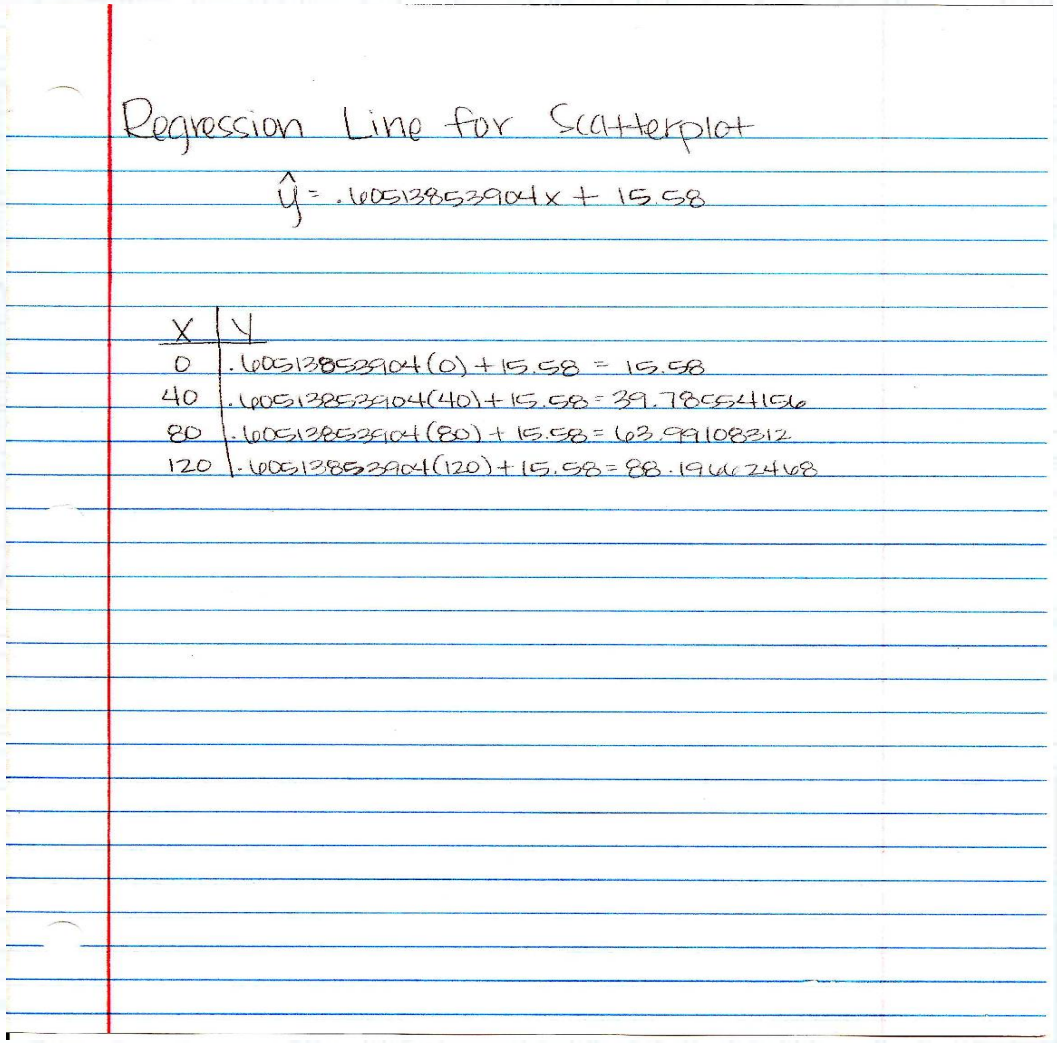
$b_1 = .605138539904$

$b_0 = 67.6 - .605138539904(85.96)$

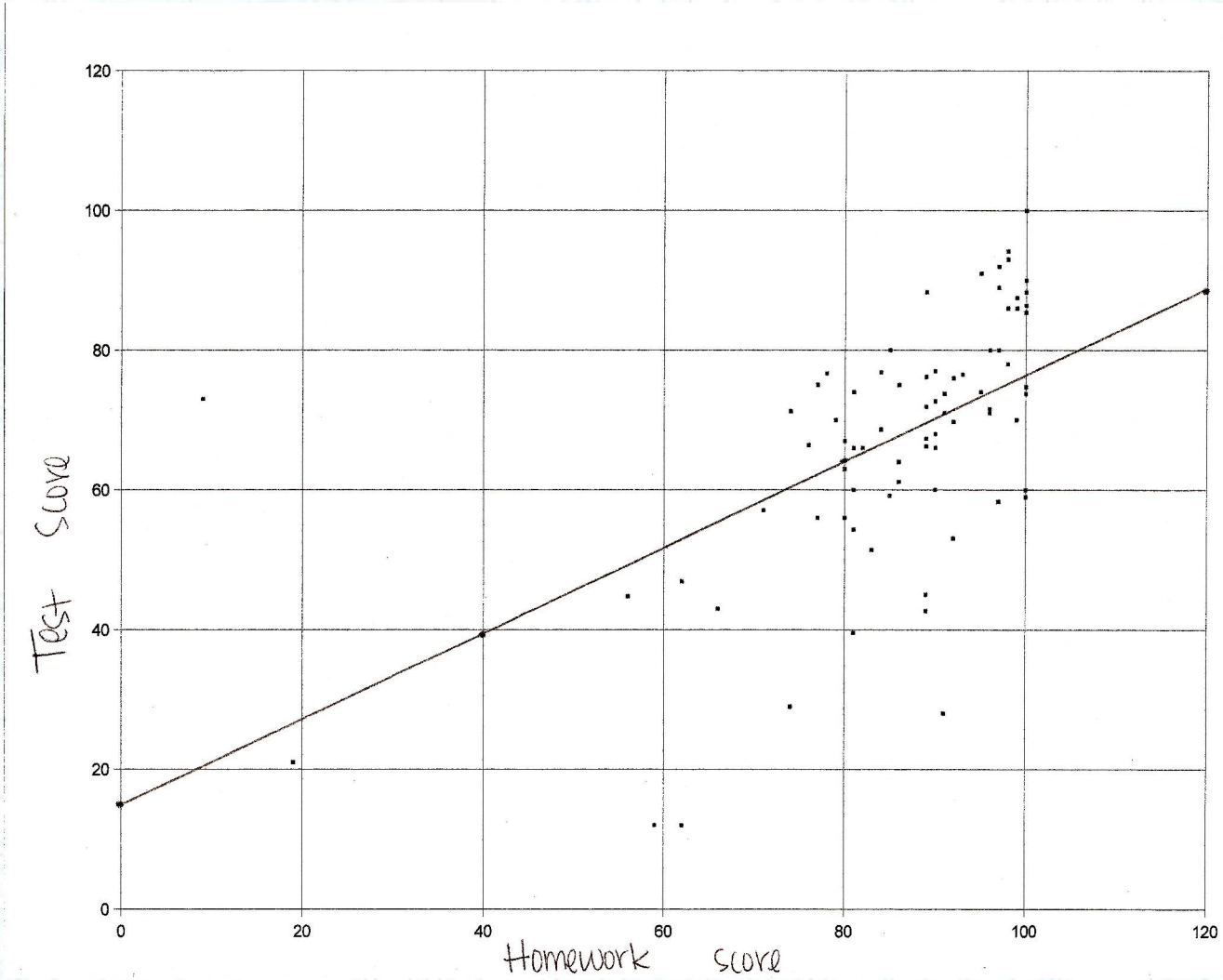
$b_0 = 15.58$

$\hat{y} = .605138539904x + 15.58$

Regression Line for Scatterplot



Scatterplot



Conclusion

- Correlation is not very strong between homework scores and test scores. We cannot predict how people are going to test based on other factors such as test anxiety, as a lurking variable.
- However, in general, the majority of students who did better on their homework scores seemed to do better on their tests.
- Correlation “R” =0.56
- Critical Value= 0.217
- R>Critical Value

Credits

Lyndsee Cooper- Provided graphs and information for presentation, helped provide data, co-creator of presentation.

McKell Hadlock- Organized data into a table, organized group communication and meetings, helped provide data, provided graphs and information for presentation, co-creator of presentation.

Reem Farrukh- Provided information for presentation.

Elin Kiss- Provided information and graphs for presentation.