Problem 10.6

part a

The slope describes a change in y for a change in x, and not the other way around.

part b

The equation should be predicted y variable as opposed to just y variable.

part c

It is not the same width for the mean response for all x variables.

Problem 10.7

part a

The parameters are actually bo, b1, and σ .

part b

The null hypothesis should refer to β1 .

part c

The prediction interval will be wider than the confidence interval for a mean response.

Problem 10.8

	n	Y-predicted	SE_b_1	Confid=95%	~t*
part a	25	1.3+12.10*x	6.31	12.10±13.024	2.0640
part b	25	13.0+6.10*x	6.31	13.10±13.024	2.0640
part c	100	1.3+12.10*x	6.31	14.10±13.380	1.9620

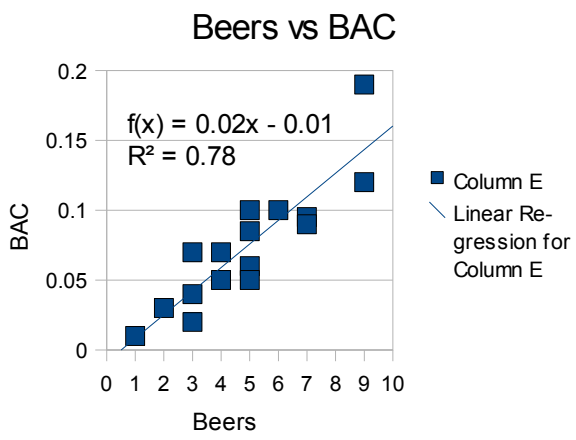
			Interval	
part a	{	25.12	-0.92	}
part b	{	26.12	0.08	}
part c	{	27.48	0.72	}

Problem 10.13

Student	Beers	BAC
1	5	0.1
2	2	0.03
3	9	0.19

4	9	0.12
5	3	0.04
6	7	0.095
7	3	0.07
8	5	0.06
9	3	0.02
10	5	0.05
11	4	0.07
12	6	0.1
13	5	0.085
14	7	0.09
15	1	0.01
16	4	0.05

part a



Problem 10.13

part a The r^2 value here denotes a pretty good relationship of more Beers means higher BAC level.

part b Ho is that drinking more beer does not increase
BAC level Ha is that drinking more beer does increase BAC level.
t=r*((1-r*r)^-0.5)*(n-2)^0.5
Using the t statistic t=b1/(SE_b_1)

SE_b_1=s/(sum(x_i-mean_x)^2)

16
18

Problem 10.20

part a

βo is 4.6 in this line. This number says that overseas returns will equal 4.6 when the US market is flat.

part b

β1 is 0.67 . This number indicates that as US returns increase, overseas returns increase as well.

part c mean overseas return=4.6+0.67*(US Return) + Noise
The Noise allows the overseas returns to vary when the US returns remain the same.

Problem 10.32

annual budget y= fixed_costs + r*(Sy/Sx)*(number of students) + Noise

part a

The constant term that does not change when x increases, is the fixed_costs.

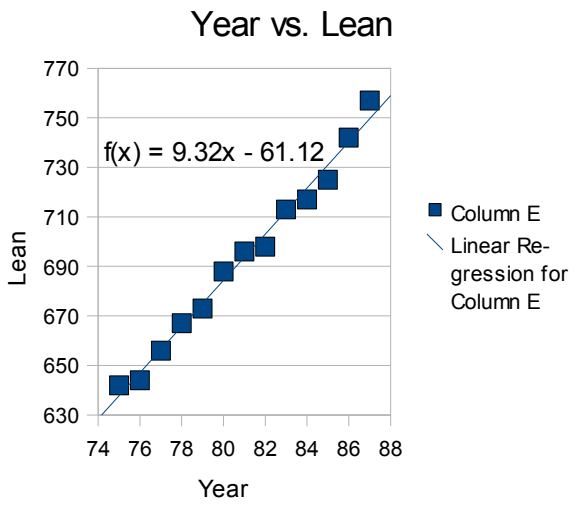
part b The r*(Sy/Sx) parameter changes when there are more students in the school. I expect this number to be greater than zero.

part c The Noise allows for variation when r*(Sy/Sx) is a constant.

Problem 10.39

Year	Lean
75	642
76	644
77	656
78	667
79	673
80	688
81	696
82	698
83	713
84	717
85	725
86	742
87	757

part a



Yes, the trend in lean over time for the tower of Pisa appears to be linear.

part b f(x)=9.32*x-61.12

Problem 10.44

Year	Bits
1971	1024
1980	64000

1987	1024000
1993	16384000
1999	256000000
2000	512000000

part a

13.024
13.024
12.380