Taylor 6.2				
part a	First, we need to test how this program calculates the standard deviation:			
		1		
		2		
		2		
		3		
	STDEV Function	0.816496581		
	SQRT(2/4)	0.707106781		
	SQRT(2/3)	0.816496581		
Therefore, this program uses the sample standard of deviation, not the population standard of deviation.				
We want to use the sample standard deviation, so this is good.				
		Voltage (V)		
	Data	0.48		
		0.45		
		0.49		
		0.46		
		0.44		
		0.57		
		0.45		
		0.47		
		0.51		
		0.50		
	Mean	0.482		
	Sample STDEV	0.038528489		
part b				
To determine whether to reject the measurement 0.57, we first find the t value for this measurement:				
	t=	|x-x_average|/(stdev)		
	t=	|0.57-0.48|/0.04		
	t=	2.25		
Next, using Appendix A, we determine the probability of being 2.25 standards of deviation from the mean				

	Prob(outside 2.25 sigma)=	1-.9756		
	=	0.0244		
Now we calculate the number of measurements out of the 10 we expect to be 2.25 standards of deviation from the mean				
Number measurements predicted 2.25 sigma or more from mean =		=	number measurements*probability of measurement 2.25 standards of deviation from mean	
		=	10*0.02	
		=	0.2	
Chauvenet's Criterion says that if we would expect less than half a measurement, we should reject the data point				
Since 0.2<0.5, we reject the data point 0.57				
Taylor 6.4				
part a				
Data	11			
	9			
	13			
	15			
	8			
	10			
	5			
	11			
	9			
	12			
	12			
	13			
	9			
	14			
Mean	10.78571429	11		
Sample STDEV	2.665407212	3		
part b				
Following the same procedure as in 6.2,				
	t=	|5-10.79|/2.67		
		2.168539326		

	Prob(outside 2.17 sigma)=	1-.9700		
	=	0.03		
Number measurements predicted 2.17 sigma or more from mean =		14*0.03		
	=	0.42		
According to Chauvenet's Criterion, we should reject this data point				
part c				
	Mean=	11.23076923	11	Formula=AVERAGE(B49:B54;B56:B62)
	STDEV=	2.166173514	2	Formula=STDEV(B49:B54;B56:B62)
Taylor 6.6				
Rejection criteria: N*(1-Prob(inside std))≥0.5				
	Prob(inside std)≤1-0.5/N			
	Number of measurements	1-0.5/N	Standard of deviations warranting rejection (from appendix A)	
	5	0.9000	1.64	
	10	0.9500	1.96	
	15	0.9667	2.12	
	20	0.9750	2.24	
	50	0.9900	2.57	
	100	0.9950	2.81	
	200	0.9975	3.0	
	1000	0.9995	3.5	
Taylor 7.2				
	Data	Uncertainty	Weight	Data*Weight
	1967.0	1.0	1.00	1967.00
	1969	1.4	0.510204082	1004.59
	1972.1	2.5	0.16	315.54
	Weighted Avg=	1968.099511	Formula=	(E109+E110+E111)/(D109+D110+D111)

	Uncertainty=	0.8	Formula=	1/sqrt(D109+D110+D111)
Taylor 7.4				
	Data	Uncertainty	Weight	Data*Weight
	503	10	0.01	5.03
	491	8	0.015625	7.671875
	525	20	0.0025	1.3125
	570	40	0.000625	0.35625
	Weighted Avg=	500	Formula=	SUM(E109:E112)/SUM(D109:D112)
	Uncertainty=	6	Formula=	1/SQRT(SUM(D109:D112))
	Without Last Data Point			
	Weighted Avg=	498	Formula=	SUM(E109:E112)/SUM(D109:D112)
	Uncertainty=	6	Formula=	1/SQRT(SUM(D109:D112))
	The difference in results is not statistically significant.			
Taylor 7.6				
	Data	Time		
	412	4		
	576	6		
	Data Per Hour	Uncertainty (Per Hour)	Weight	Weight*Data/Hr
	103	5	0.038834951	4
	96	4	0.0625	6
	Phys 1 Decays per hour=	103 ± 5		
	Phys 2 Decays per hour=	96 ± 4		
	Weighted Avg=	99	Formula=	SUM(G126:G127)/SUM(F126:F127)
	Uncertainty=	3	Formula=	1/SQRT(SUM(F126:F127))
	Total Rate=	99 ± 3		

10.33333333