

Question 1: Please fill out the square boxes.... (statistical outliers should be exclude from the mean). Which ratio is most precisely measured?

Question 2: Calculate the atomic weight of the Si measured, and how does this compare to the 'known' atomic weight?

Voltage			Calculate		This was collected on a 10 ¹¹ ohm resistor with 8 second of intergration						
30	Voltage	Voltage	Calculate	Calculate	Calculate number of ions of			Faraday noise	Relative size of Faraday noise		
	29	28	30/28	29/28	30	29	28	in volts	30	29	28
0.25820	0.37203	7.02773	0.03674085	0.05293792	1.29E+08	1.86E+08	3.51E+09	1.43E-05	5.56E-05	3.86E-05	2.04E-06
0.25643	0.36943	6.97894	0.03674336	0.05293458	1.28E+08	1.84E+08	3.48E+09	1.43E-05	5.59E-05	3.88E-05	2.06E-06
0.25379	0.36565	6.90754	0.03674069	0.05293459	1.27E+08	1.83E+08	3.45E+09	1.43E-05	5.65E-05	3.92E-05	2.08E-06
0.25638	0.36939	6.97821	0.03674061	0.05293428	1.28E+08	1.84E+08	3.48E+09	1.43E-05	5.60E-05	3.88E-05	2.06E-06
0.25675	0.36992	6.98798	0.03674225	0.05293610	1.28E+08	1.85E+08	3.49E+09	1.43E-05	5.59E-05	3.88E-05	2.05E-06
0.25417	0.36617	6.91825	0.03673974	0.05292753	1.27E+08	1.83E+08	3.45E+09	1.43E-05	5.64E-05	3.92E-05	2.07E-06
0.25577	0.36859	6.96251	0.03673531	0.05293953	1.28E+08	1.84E+08	3.48E+09	1.43E-05	5.61E-05	3.89E-05	2.06E-06
0.25492	0.36741	6.93993	0.03673239	0.05294115	1.27E+08	1.83E+08	3.47E+09	1.43E-05	5.63E-05	3.90E-05	2.07E-06
0.25267	0.36399	6.87699	0.03674166	0.05292890	1.26E+08	1.82E+08	3.43E+09	1.43E-05	5.68E-05	3.94E-05	2.09E-06
0.25591	0.36873	6.96527	0.03674118	0.05293768	1.28E+08	1.84E+08	3.48E+09	1.43E-05	5.61E-05	3.89E-05	2.06E-06
0.25484	0.36718	6.93628	0.03673991	0.05293576	1.27E+08	1.83E+08	3.46E+09	1.43E-05	5.63E-05	3.91E-05	2.07E-06
0.25293	0.36442	6.88538	0.03673392	0.05292705	1.26E+08	1.82E+08	3.44E+09	1.43E-05	5.67E-05	3.94E-05	2.08E-06
0.25551	0.36809	6.95398	0.03674320	0.05293273	1.28E+08	1.84E+08	3.47E+09	1.43E-05	5.61E-05	3.90E-05	2.06E-06
0.25526	0.36786	6.94850	0.03673624	0.05294096	1.27E+08	1.84E+08	3.47E+09	1.43E-05	5.62E-05	3.90E-05	2.06E-06
0.25270	0.36406	6.87817	0.03673979	0.05292937	1.26E+08	1.82E+08	3.43E+09	1.43E-05	5.68E-05	3.94E-05	2.09E-06
0.25535	0.36795	6.95082	0.03673687	0.05293619	1.28E+08	1.84E+08	3.47E+09	1.43E-05	5.62E-05	3.90E-05	2.06E-06
0.25444	0.36660	6.92585	0.03673761	0.05293274	1.27E+08	1.83E+08	3.46E+09	1.43E-05	5.64E-05	3.91E-05	2.07E-06
0.25062	0.36107	6.82181	0.03673869	0.05292828	1.25E+08	1.80E+08	3.41E+09	1.43E-05	5.72E-05	3.97E-05	2.10E-06
0.25561	0.36831	6.95680	0.03674258	0.05294187	1.28E+08	1.84E+08	3.47E+09	1.43E-05	5.61E-05	3.90E-05	2.06E-06
0.25321	0.36484	6.89249	0.03673672	0.05293316	1.26E+08	1.82E+08	3.44E+09	1.43E-05	5.67E-05	3.93E-05	2.08E-06
0.25166	0.36266	6.85030	0.03673759	0.05294075	1.26E+08	1.81E+08	3.42E+09	1.43E-05	5.70E-05	3.96E-05	2.09E-06
0.25544	0.36805	6.95282	0.03673957	0.05293505	1.28E+08	1.84E+08	3.47E+09	1.43E-05	5.62E-05	3.90E-05	2.06E-06
0.25327	0.36425	6.89494	0.03673245	0.05282819	1.26E+08	1.82E+08	3.44E+09	1.43E-05	5.66E-05	3.94E-05	2.08E-06
0.25249	0.36389	6.87343	0.03673484	0.05294212	1.26E+08	1.82E+08	3.43E+09	1.43E-05	5.68E-05	3.94E-05	2.09E-06
0.25482	0.36716	6.93679	0.03673447	0.05292947	1.27E+08	1.83E+08	3.46E+09	1.43E-05	5.63E-05	3.91E-05	2.07E-06
Mean =			0.03673850	0.05293491	1.27E+08	1.83E+08	3.46E+09	1.43E-05	5.64E-05	3.91E-05	2.07E-06
Standardabweichung 1 standard deviation =			0.00000330	0.00000476							
2 standard deviation =			0.00000661	0.00000952							
number of ratios=			25	24							
Mittlerer Fehler des Mi1 standard error =			0.00000066	0.00000097							
2 standard error =			0.00000132	0.00000194							
Relative error (2 s.e.m.)			0.2000	0.2041	Relative error (2 s.e.m. in ppm)						

Question 2

gemessen real

AMU

28.1160 28.0855

Es wurden mehr schwere Isotope gemessen.



Calculate relative count statistical error

30	29	28
5.56E-05	3.86E-05	2.04E-06
5.59E-05	3.88E-05	2.06E-06
5.65E-05	3.92E-05	2.08E-06
5.60E-05	3.88E-05	2.06E-06
5.59E-05	3.88E-05	2.05E-06
5.64E-05	3.92E-05	2.07E-06
5.61E-05	3.89E-05	2.06E-06
5.63E-05	3.90E-05	2.07E-06
5.68E-05	3.94E-05	2.09E-06
5.61E-05	3.89E-05	2.06E-06
5.63E-05	3.91E-05	2.07E-06
5.67E-05	3.94E-05	2.08E-06
5.61E-05	3.90E-05	2.06E-06
5.62E-05	3.90E-05	2.06E-06
5.68E-05	3.94E-05	2.09E-06
5.62E-05	3.90E-05	2.06E-06
5.64E-05	3.91E-05	2.07E-06
5.72E-05	3.97E-05	2.10E-06
5.61E-05	3.90E-05	2.06E-06
5.67E-05	3.93E-05	2.08E-06
5.70E-05	3.96E-05	2.09E-06
5.62E-05	3.90E-05	2.06E-06
5.66E-05	3.94E-05	2.08E-06
5.68E-05	3.94E-05	2.09E-06
5.63E-05	3.91E-05	2.07E-06

5.64E-05 3.91E-05 2.07E-06



0.00000235	0.00000302
0.00000486	0.00000032
0.00000219	0.00000031
0.00000211	0.00000063
0.00000375	0.00000119
0.00000124	0.00000737
0.00000319	0.00000462
0.00000611	0.00000624
0.00000316	0.00000601
0.00000268	0.00000277
0.00000141	0.00000086
0.00000458	0.00000786
0.00000470	0.00000218
0.00000226	0.00000605
0.00000129	0.00000554
0.00000163	0.00000129
0.00000089	0.00000217
0.00000019	0.00000663
0.00000408	0.00000696
0.00000178	0.00000174
0.00000091	0.00000584
0.00000107	0.00000014
0.00000605	0.00010672
0.00000366	0.00000721
0.00000403	0.00000543
0.00000019	0.00000014