	A	B	C	D	E	F	G
1	**Phys 1102/1220 - Richmond Campus**			**DISCLAIMER: These example data are purposefully**			
2	**Experiment 13: Current Balance**			**inaccurate. You may test your spreadsheet equations**			
3	*Your name, Partner's Name*			**for correctness using these values, but your real**			
4	*Date*			**experimental values will be very different.**			
5							
6	**DATA**						
7	**Sum of radii**				**Gravity**		
8	**2r (mm)**	**δ[2r] (mm)**	**δ[2r]/2r**		**g (m/s^2)**	**δg (m/s^2)**	**δg/g**
9	**3.1**	0	0.0%		**9.81**	0	0.0%
10							
11	**Edge-to-edge conductor separation**				**Parallel Conductor length**		
12	**d (mm)**	**δd (mm)**	**δd/d**		**L (cm)**	**δL (cm)**	**δL/L**
13	**3**	**0.01**	0.3%		**36.2**	**0.01**	0.0%
14							
15	**Current balance apparatus measurements**						
16	**Mass added**			**Measured current**			
17	**m (mg)**	**δm (mg)**	**δm/m**	**I (A)**	**δI (A)**	**δI/I**	
18	**35**	0.35	**1.0%**	**5.44**	0.136	**2.5%**	
19	**50**	0.5	**1.0%**	**6.36**	0.159	**2.5%**	
20	**65**	0.65	**1.0%**	**7.22**	0.1805	**2.5%**	
21	**80**	0.8	**1.0%**	**8.09**	0.20225	**2.5%**	
22	**100**	1	**1.0%**	**8.99**	0.22475	**2.5%**	
23	**110**	1.1	**1.0%**	**9.5**	0.2375	**2.5%**	
24							
25	**CALCULATIONS**						
26	**Sum of radii, in meters**				**Total separation, in meters**		
27	**2r (m)**	**δ[2r] (m)**	**δ[2r]/2r**		**a (m)**	**δa (m)**	**δa/a**
28	0.0031	0	0.0%		0.0061	0.00001	0.2%
29							
30	**Edge-to-edge separation, in meters**				**Parallel conductor length, in meters**		
31	**d (m)**	**δd (m)**	**δd/d**		**L (m)**	**δL (m)**	**δL/L**
32	0.003	0.00001	0.3%		0.362	0.0001	0.0%
33							
34	**Force of gravity**			**Current squared**			
35	**Fg (N)**	**δFg (N)**	**δFg/Fg**	**I^2 (A^2)**	**δI^2 (A^2)**	**δI^2/I^2**	
36	0.00034335	3.4335E-06	1.0%	29.5936	1.47968	5.0%	
37	0.0004905	0.000004905	1.0%	40.4496	2.02248	5.0%	
38	0.00063765	6.3765E-06	1.0%	52.1284	2.60642	5.0%	
39	0.0007848	0.000007848	1.0%	65.4481	3.272405	5.0%	
40	0.000981	0.00000981	1.0%	80.8201	4.041005	5.0%	
41	0.0010791	0.000010791	1.0%	90.25	4.5125	5.0%	
42							
43	**Slope of graph of eq. 4, from Linegraph V2**				**Experimental magnetic constant**		
44	**s (N/A^2)**	**δs (N/A^2)**	**δs/s**		**μ_o (N/A^2)**	**δμ_o (N/A^2)**	**δμ_o/μ_o**
45	1.2101E-05	5.2910E-07	4.4%		1.2812E-06	5.606E-08	4.4%
46							
47	**UNCERT SUB-CALCS**						
48	∂μ_o/∂L	∂μ_o/∂a	∂μ_o/∂s				
49	-3.5392E-06	0.000210031	0.105876879				