

	A	B	C	D	E	F	G	H	I	J	K	L	M					
1	Your name		Date															
2	Partner's name																	
3																		
4	Phys 1101/1120 - Surrey Campus				DISCLAIMER: These example data are purposefully inaccurate. You may test your spreadsheet equations for correctness using these values, but your real experimental values will be very different.													
5	Expt. 4: Hooke's Law																	
6																		
7	DATA																	
8																		
9	Mass of hanger:				Accel. due to gravity													
10	m_h (g)	dm_h (g)	(dm/m)_h		g (m/s^2)	dg (m/s^2)	dg/g											
11	71	0.05	0.07%		9.81	0.01	0.10%											
12																		
13	Added Mass:				Extension (adding masses):			Extension (removing masses):										
14	m_a (g)	dm_a (g)	(dm/m)_a		x (cm)	dx (cm)	(dx/x)_1	x (cm)	dx (cm)	(dx/x)_2								
15	30	0.05	0.17%		1	0.1	10.00%	1.1	0.1	9.09%								
16	50	0.05	0.10%		2	0.1	5.00%	2.1	0.1	4.76%								
17	70	0.05	0.07%		3	0.1	3.33%	2.9	0.1	3.45%								
18	90	0.05	0.06%		4	0.1	2.50%	3.9	0.1	2.56%								
19	110	0.05	0.05%		5	0.1	2.00%	5.1	0.1	1.96%								
20	130	0.05	0.04%		6	0.1	1.67%	6.1	0.1	1.64%								
21	150	0.05	0.03%		7	0.1	1.43%	7.1	0.1	1.41%								
22	170	0.05	0.03%		8	0.1	1.25%	7.9	0.1	1.27%								
23																		
24	CALCULATIONS - PART A:								NOTE: In this case, uncertainty based on $x_{ave} = (x_1 + x_2) / 2$, NOT standard deviation									
25																		
26	Total mass:				Force:			Average extension:										
27	M (kg)	dM (kg)	dM/M		W (N)	dW (N)	dW/W	x_ave (m)	dx_ave (m)	(dx/x)_ave								
28	0.101	7.07E-05	0.07%		0.99081	0.0012253	0.12%	0.0105	0.0007071	6.73%								
29	0.121	7.07E-05	0.06%		1.18701	0.0013947	0.12%	0.0205	0.0007071	3.45%								
30	0.141	7.07E-05	0.05%		1.38321	0.0015714	0.11%	0.0295	0.0007071	2.40%								
31	0.161	7.07E-05	0.04%		1.57941	0.0017531	0.11%	0.0395	0.0007071	1.79%								
32	0.181	7.07E-05	0.04%		1.77561	0.0019384	0.11%	0.0505	0.0007071	1.40%								
33	0.201	7.07E-05	0.04%		1.97181	0.0021263	0.11%	0.0605	0.0007071	1.17%								
34	0.221	7.07E-05	0.03%		2.16801	0.0023163	0.11%	0.0705	0.0007071	1.00%								
35	0.241	7.07E-05	0.03%		2.36421	0.0025078	0.11%	0.0795	0.0007071	0.89%								