	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	Your name		Date																
2	Partner's name																		
3																			
4	**Phys 1101/1120 - Richmond campus**				**DISCLAIMER: These example data are purposefully**														
5	**Expt. 10: The Physical Pendulum**				**inaccurate. You may test your spreadsheet equations**														
6					**for correctness using these values, but your real**														
7	**DATA:**				**experimental values will be very different.**														
8																			
9	**Dimensions of objects:**								**Distance from S to C:**				**Measured Average Period:**				**Acceleration due to gravity:**		
10	**Bar:**				**Disk:**				**h (cm)**	**dh (cm)**	**dh/h**		**Texp (s)**	**dTexp (s)**	**(dT/T)exp**		**g (m/s^2)**	**dg (m/s^2)**	**dg/g**
11	**Mbar (g)**	**dMbar (g)**	**(dM/M)bar**		**Mdisk (g)**	**dMdisk (g)**	**(dM/M)disk**		**7**	**0.05**	0.71%		**0.1**	0.001	1.00%		**9.81**	**0.01**	0.10%
12	**840**	**0.5**	0.06%		**780**	**0.5**	0.06%		**9**	**0.05**	0.56%		**0.114**	0.00114	1.00%				
13									**11**	**0.05**	0.45%		**0.128**	0.00128	1.00%				
14	**L (cm)**	**dL (cm)**	**dL/L**		**Ddisk (cm)**	**dDdisk (cm)**	**(dD/D)disk**		**13**	**0.05**	0.38%		**0.138**	0.00138	1.00%				
15	**70**	**0.05**	0.07%		**15**	**0.1**	0.67%		**15**	**0.05**	0.33%		**0.149**	0.00149	1.00%				
16									**17**	**0.05**	0.29%		**0.157**	0.00157	1.00%				
17	**W (cm)**	**dW (cm)**	**dW/W**						**19**	**0.05**	0.26%		**0.166**	0.00166	1.00%				
18	**2**	**0.05**	2.50%						**21**	**0.05**	0.24%		**0.176**	0.00176	1.00%				
19									**23**	**0.05**	0.22%		**0.184**	0.00184	1.00%				
20									**25**	**0.05**	0.20%		**0.192**	0.00192	1.00%				
21																			
22	**CALCULATIONS:**																		
23																			
24	**Dimensions of objects:**																		
25	**Bar:**				**Disk:**				**Distance from S to C:**				**Theoretical I for each h:**				**Theoretical Period:**		
26	**Mbar (kg)**	**dMbar (kg)**	**(dM/M)bar**		**Mdisk (kg)**	**dMdisk (kg)**	**(dM/M)disk**		**h (m)**	**dh (m)**	**dh/h**		**I (kgm^2)**	**dI (kgm^2)**	**dI/I**		**Tth (s)**	**dTth (s)**	**(dT/T)th**
27	0.84	0.0005	0.06%		0.78	0.0005	0.06%		0.07	0.0005	0.71%		0.04446	0.0001286	0.29%		1.256095	0.00489	0.39%
28					Note: radius, not diameter!				0.09	0.0005	0.56%		0.049644	0.000158	0.32%		1.170574	0.0038032	0.32%
29	**L (m)**	**dL (m)**	**dL/L**		**Rdisk (m)**	**dRdisk (m)**	**(dD/D)disk**		0.11	0.0005	0.45%		0.056124	0.0001884	0.34%		1.125809	0.0032416	0.29%
30	0.7	0.0005	0.07%		0.075	0.0005	0.67%		0.13	0.0005	0.38%		0.0639	0.0002195	0.34%		1.105009	0.0029142	0.26%
31									0.15	0.0005	0.33%		0.072972	0.000251	0.34%		1.099309	0.0027022	0.25%
32	**W (m)**	**dW (m)**	**dW/W**						0.17	0.0005	0.29%		0.08334	0.0002827	0.34%		1.103544	0.0025519	0.23%
33	0.02	0.0005	2.50%						0.19	0.0005	0.26%		0.095004	0.0003148	0.33%		1.114503	0.0024374	0.22%
34									0.21	0.0005	0.24%		0.107964	0.000347	0.32%		1.130101	0.0023452	0.21%
35	**Total Mass of apparatus:**								0.23	0.0005	0.22%		0.12222	0.0003794	0.31%		1.148933	0.0022682	0.20%
36	**m (kg)**	**dm (kg)**	**dm/m**						0.25	0.0005	0.20%		0.137772	0.0004119	0.30%		1.170033	0.002202	0.19%
37	1.62	0.000707107	0.04%																
38													**Sub-calculations**						
39													**used for I uncty:**						
40	**Theoretical Moments of Inertia:**												**d(mh^2)**						
41													0.000113						
42	**Bar:**				**Disk:**				**Entire Apparatus:**				0.000146						
43	**I_b (kgm^2)**	**dI_b (kgm^2)**	**(dI/I)bar**		**I_d (kgm^2)**	**dI_d (kgm^2)**	**(dI/I)disk**		**Io (kgm^2**	**dIo (kgm^2)**	**dIo/Io**		0.000178						
44	0.034328	5.31082E-05	0.15%		0.00219375	2.92838E-05	1.33%		0.036522	6.0647E-05	0.17%		0.000211						
45													0.000244						
46	**Sub-calculations used for uncertainties of theoretical moments of inertia:**												0.000276						
47	**Bar:**				**Disk:**								0.000309						
48	**d(L^2)**	0.0007			**d(R^2)**	0.000075							0.000342						
49	**d(W^2)**	0.00002			**d(R^2)/R^2**	0.013333333							0.000374						
50	**d(L^2+W^2)**	0.000700286											0.000407						
51	**d(L^2+W^2)/(L^2+W^2)**																		
52		0.001427989																	