

Calculations of the value of G intended to show the significance of circular orbits in Newton's equation.

Central Body	Orbiting Body	These columns are all in metric units						Referred from list in col C	Calculated value of G	Error Ratio in the calculation of G
		Mass in kg	Orbit Velocity km/hr	Orbit Radius km	Orbit Period hrs/radian	KE	PE			
Earth	Moon	7.3E+22	3,681	384,400	104	6.484E+58	6.484E+58	# # # #	6.73E-11	1.009 Moon
Sun	Planets									
2.0E+30	Mercury	3.3E+23	170,503	57,909,227	340	2.202E+69	2.202E+69	# # # #	6.53E-11	0.979 Mercury
2.0E+30	Venus	4.9E+24	126,074	108,209,475	858	1.134E+71	1.134E+71	# # # #	6.67E-11	1.000 Venus
2.0E+30	Earth	6.0E+24	107,218	149,597,900	1,395	2.659E+71	2.659E+71	# # # #	6.67E-11	1.000 Earth
2.0E+30	Mars	6.4E+23	86,677	227,943,824	2,630	6.632E+70	6.632E+70	# # # #	6.64E-11	0.996 Mars
2.0E+30	Jupiter	1.9E+27	47,002	778,340,821	16,560	2.287E+75	2.287E+75	# # # #	6.67E-11	1.000 Jupiter
2.0E+30	Saturn	5.7E+26	34,701	1,426,666,422	41,113	2.301E+75	2.301E+75	# # # #	6.66E-11	0.999 Saturn
2.0E+30	Uranus	8.7E+25	24,477	2,870,658,186	117,280	1.423E+75	1.423E+75	# # # #	6.67E-11	1.000 Uranus
2.0E+30	Neptune	1.0E+26	19,566	4,498,396,441	229,909	4.122E+75	4.122E+75	# # # #	6.68E-11	1.002 Neptune

G (Universal Gravity Constant)
 Earth or Sun's Mass
 Kilometers to Miles
 Earth or Sun's Radius

The green sections are constants that are used in the calculations and are cross-referenced.

6.67E-11	Universal Gravity Constant
0.62137	Convert Kilometers fo Miles
695,508	Sun's Radius
2.0E+30	Mass of the Sun
6,371	Radius of the Earth
6.0E+24	Mass of the Earth

Conversions to everyday units		
Orbit Radius miles	Orbit Velocity mph	Orbit Period days/cycle
238,855	2,287	27
35,983,056	105,945	89
67,238,121	78,339	225
92,955,647	66,622	365
141,637,454	53,858	688
483,637,636	29,206	4,335
886,487,715	21,562	10,763
1,783,740,877	15,209	30,703
2,795,168,597	12,158	60,188

