APPENDIX

PHYSICAL DATA

A

Tables A.1–A.3 contain information that is commonly available and may be found in the literature and on the World Wide Web.

Table A.1 Astronomical data for the sun, the planets, and the moon

Object	Radius (km)	Mass (kg)	Sidereal rotation period	Inclination of equator to orbit plane	Semimajor axis of orbit (km)	Orbit eccentricity	Inclination of orbit to the ecliptic plane	Orbit sidereal period
Sun	696,000	1.989×10^{30}	25.38d	7.25°	–	–	–	–
Mercury	2440	330.2×10^{21}	58.65d	0.01°	57.91×10^{6}	0.2056	7.00°	87.97d
Venus	6052	4.869×10^{24}	243d[a]	177.4°	108.2×10^{6}	0.0067	3.39°	224.7d
Earth	6378	5.974×10^{24}	23.9345h	23.45°	149.6×10^{6}	0.0167	0.00°	365.256d
(Moon)	1737	73.48×10^{21}	27.32d	6.68°	384.4×10^{3}	0.0549	5.145°	27.322d
Mars	3396	641.9×10^{21}	24.62h	25.19°	227.9×10^{6}	0.0935	1.850°	1.881y
Jupiter	71,490	1.899×10^{27}	9.925h	3.13°	778.6×10^{6}	0.0489	1.304°	11.86y
Saturn	60,270	568.5×10^{24}	10.66h	26.73°	1.433×10^{9}	0.0565	2.485°	29.46y
Uranus	25,560	86.83×10^{24}	17.24h[a]	97.77°	2.872×10^{9}	0.0457	0.772°	84.01y
Neptune	24,764	102.4×10^{24}	16.11h	28.32°	4.495×10^{9}	0.0113	1.769	164.8y
(Pluto)	1187	13.03×10^{21}	6.387d[a]	122.5°	5.906×10^{9}	0.2488	17.16°	247.9y

[a] *Retrograde.*

Table A.2 Gravitational parameter (μ) and sphere of influence (SOI) radius for the sun, the planets, and the moon

Celestial body	μ (km^3/s^2)	SOI radius (km)
Sun	132,712,440,018	–
Mercury	22,032	112,000
Venus	324,859	616,000
Earth	398,600	925,000
Earth's moon	4905	66,100
Mars	42,828	577,000
Jupiter	126,686,534	48,200,000
Saturn	37,931,187	54,800,000
Uranus	5,793,939	51,800,000
Neptune	6,836,529	86,600,000
Pluto	871	3,080,000

Table A.3 Some conversion factors

1 ft = 0.3048 m
1 mile (mi) = 1.609 km
1 nautical mile (n mi) =1.151 mi = 1.852 km
1 mi/h = 0.0004469 km/s
1 lb (mass) = 0.4536 kg
1 lb (force) = 4.448 N
1 psi = 6895 kPa
1 astronomical unit (AU) = 149,597,870.700 km