	AU	Radius	Volume	Mass	Gravity (g)	Year	Day
Sun	92M mi	109	1.3M	332,946	27.9	250M years***	25.38
Moon	224K mi	0.27	0.02	0.01	0.17	27.32 days	27.32
Mercury	0.39	0.38	0.06	0.06	0.38	0.24	58
Venus	0.72	0.95	0.87	0.82	0.9	0.62	-243*
Earth	1.0	6378 km	1x10 <sup>12</sup> km <sup>3</sup>	6x10 <sup>24</sup> kg	9.81 m/s²	365 days	24 hours
Mars	1.52	0.53	0.15	0.11	0.38	1.9	1.03
Ceres	2.77	0.07	0.0005	0.0002	0.028	4.6	0.38
Jupiter	5.20	11.2	1321	318	2.36	11.9	0.41
Saturn	9.54	9.5	764	95	1.06	29.4	0.44
Uranus	19.2	4	63	14	0.89	84	-0.72**
Neptune	30.06	3.9	58	17	1.12	165	0.67
Pluto	39.44	0.18	0.007	0.002	0.06	248	-6.39*

## Physical Properties of the Solar System

**Note:** When comparing the "size" of a planet, one must consider *which* parameter (radius, mass, volume?) is being compared.

## Kepler's Laws of Planetary Motion

- 1. The orbit of each planet is an ellipse with the Sun at one focus, and nothing at the other.
- 2. A line from the planet to the Sun sweeps out equal areas in equal time.
- 3. The square of the orbital period of a planet is directly proportional to the cube of the semi-major axis of its orbit.



Kepler's corrections to the Copernican (heliocentric) model are not at all obvious: 1) The planetary orbit is not a circle, but an ellipse. 2) The Sun is not at the center but at a focal point. 3) Neither the linear speed nor the angular speed of the planet in the orbit is constant, but the area speed is constant. 4) The square of the sidereal period is proportionate to the cube of the mean between the maximum and minimum distances from the Sun. — *Kepler's Laws, Wikipedia* 

**Further Reading:** \*\*Axial tilt, \*\*\*Galactic year, Kepler's Laws of Planetary Motion, List of Solar System objects by size, \*Retrograde motion, Titus-Bode Law.