

Astronomy Calculations Worksheet
Chapter 2

Name _____

$$e = \frac{f}{a} \quad a^3 = p^2 \quad A = a(1 + e) \quad P = a(1 - e)$$

A = Aphelion

P = Perihelion

F = distance between foci

a = semi-major axis

p = period

e = eccentricity

1. Calculate the semi-major axis for Saturn in miles. Its perihelion is 837.4 million miles and its aphelion is 936.0 million miles.
2. Calculate the eccentricity for Uranus. Its perihelion is 1698.56 million miles and its aphelion is 1866.84 million miles.
3. What is Mars' average distance to the sun in astronomical units if its semi-major axis is 2.25×10^8 km?
4. What is Jupiter's orbital period if it is 5.203 astronomical units from the Sun?
5. Compute the perihelion of Venus in miles if its eccentricity is 0.0068 and its semi-major axis is 67 million miles.
6. Figure the eccentricity of the earth. Its perihelion is 0.98 astronomical units and its aphelion is 1.02 astronomical units.