

# Kepler's Laws

- 1. Planets have an elliptical orbit
- 2. Equal time sweeps out equal area
- 3. Time squared = distance cubed

# Kepler's Third Law

- Time squared = distance cubed
- Time = years to revolve around the Sun
- Distance is from the Sun to the planet of interest (Astronomical Units – AU)
- Example:
  - Next Slide Please

# Kepler's 3<sup>rd</sup> Law

- Example:
  - Jupiter takes ~12 years to revolve one time around the Sun
  - 12 squared = 144 (Time squared)
  - $\text{Dist}^3 = 144$
  - Cube root of both sides
  - Distance from the Sun = cube root of 144 or
  - 5.2 Astronomical Units (AU)