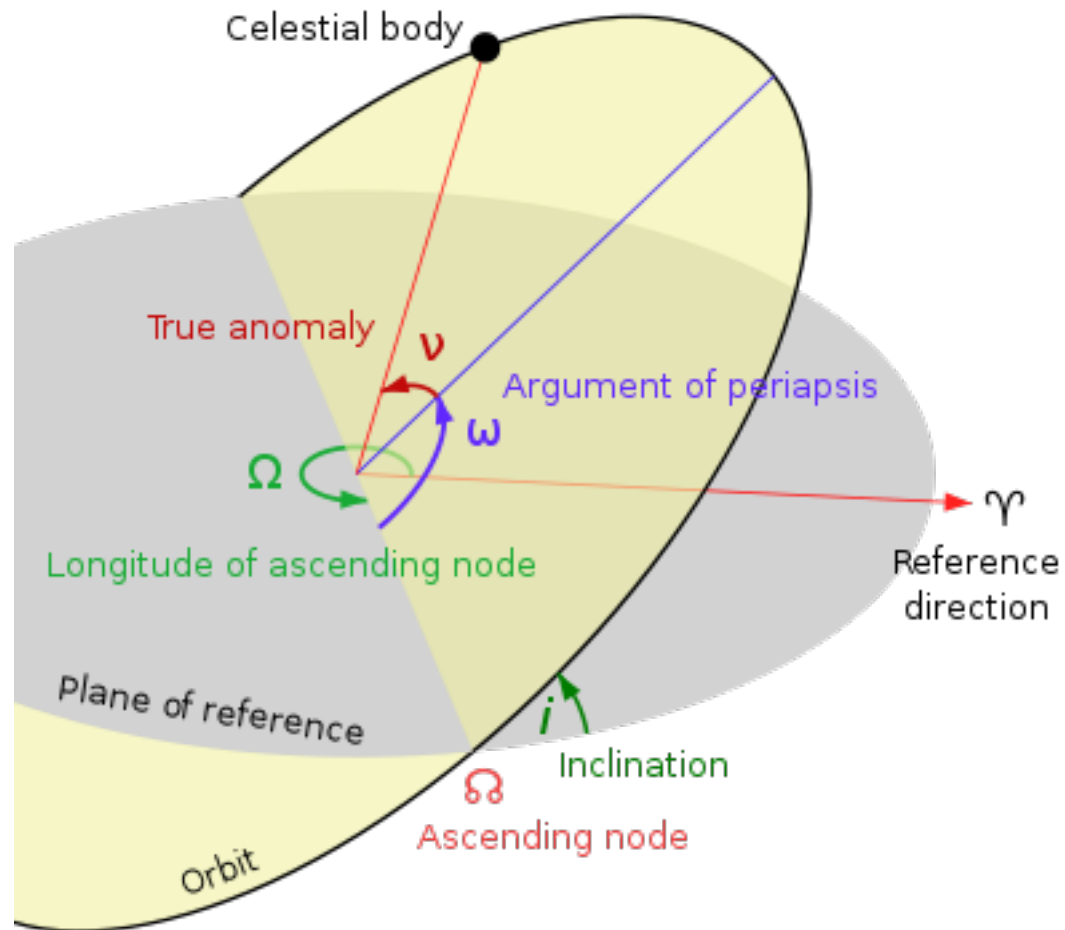
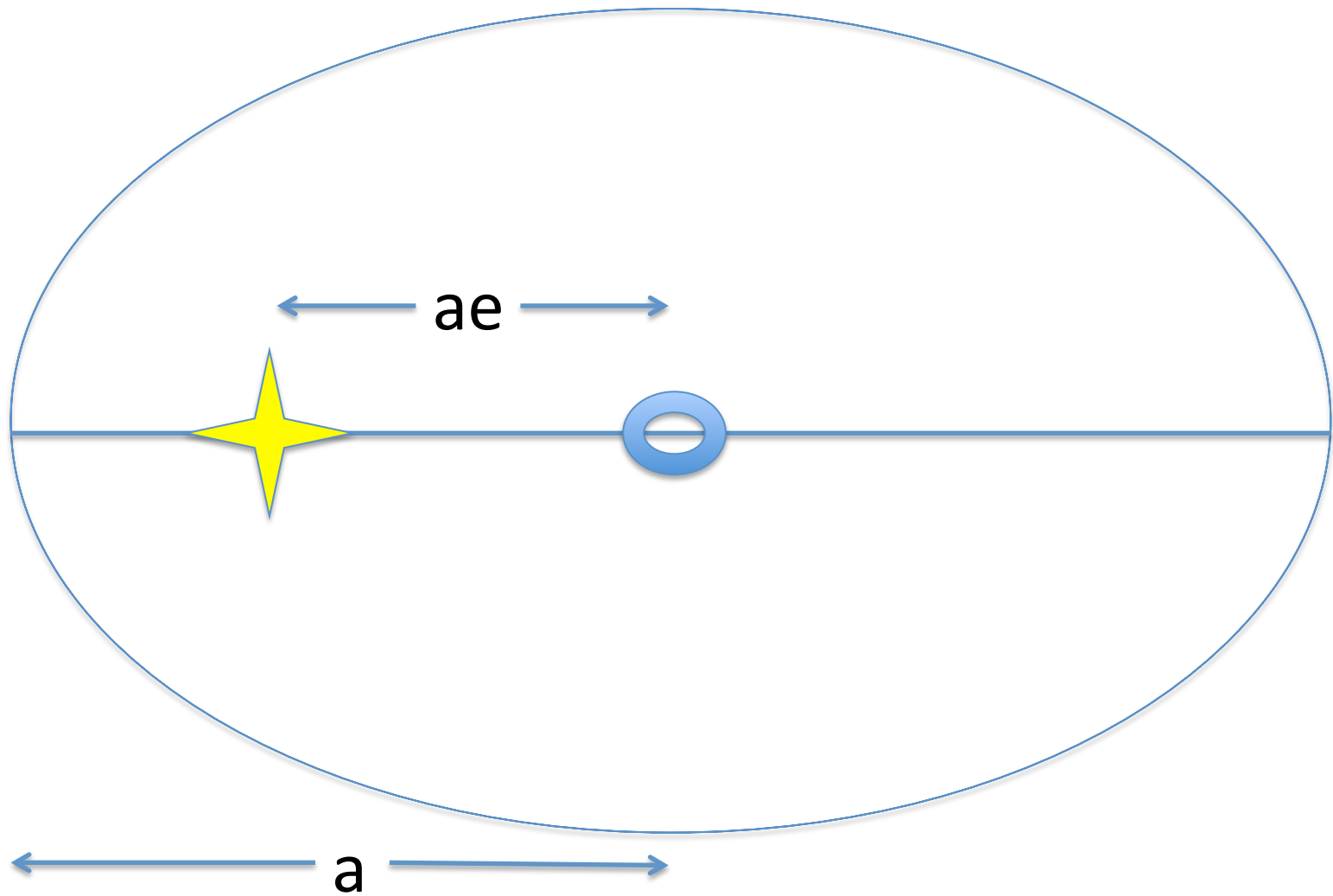


Orbital Elements

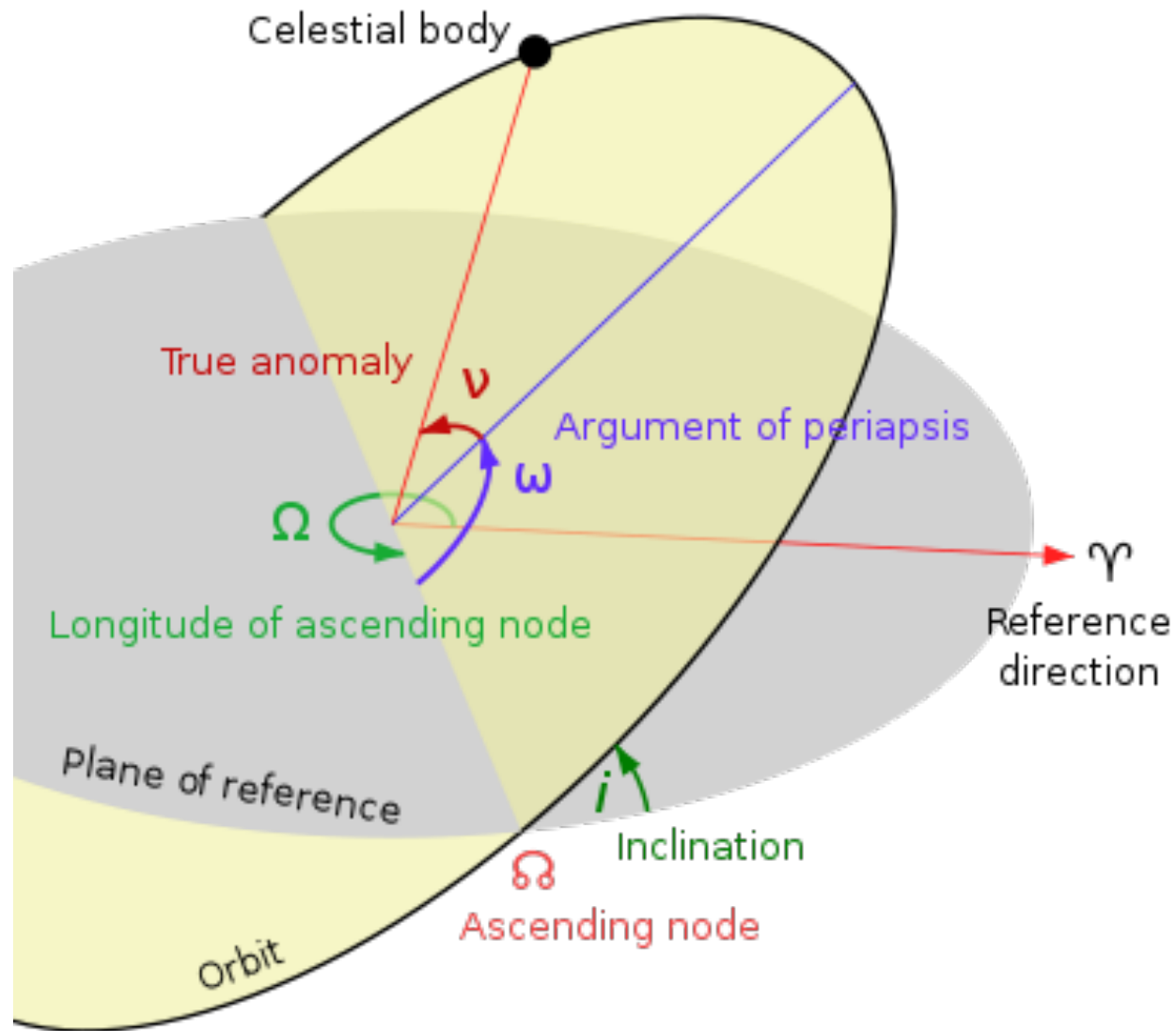


How many numbers do we need to specify an orbit?

Parameters describing an ellipse

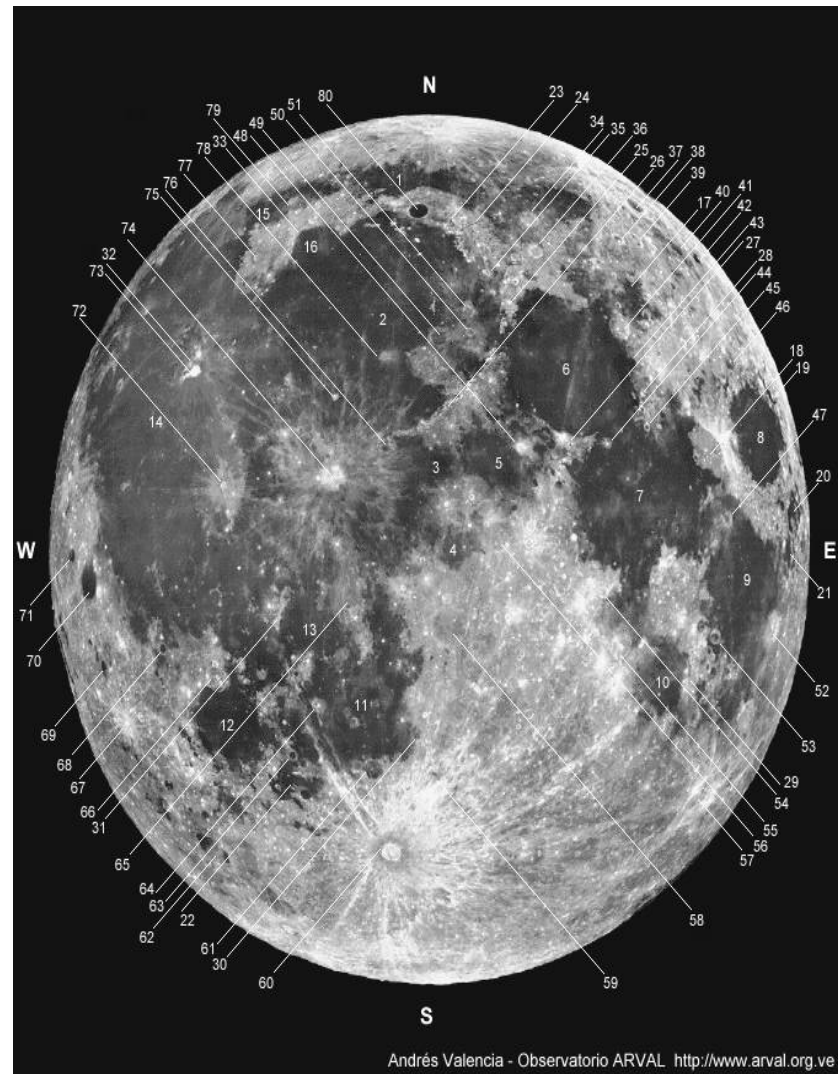


Additional orbital elements

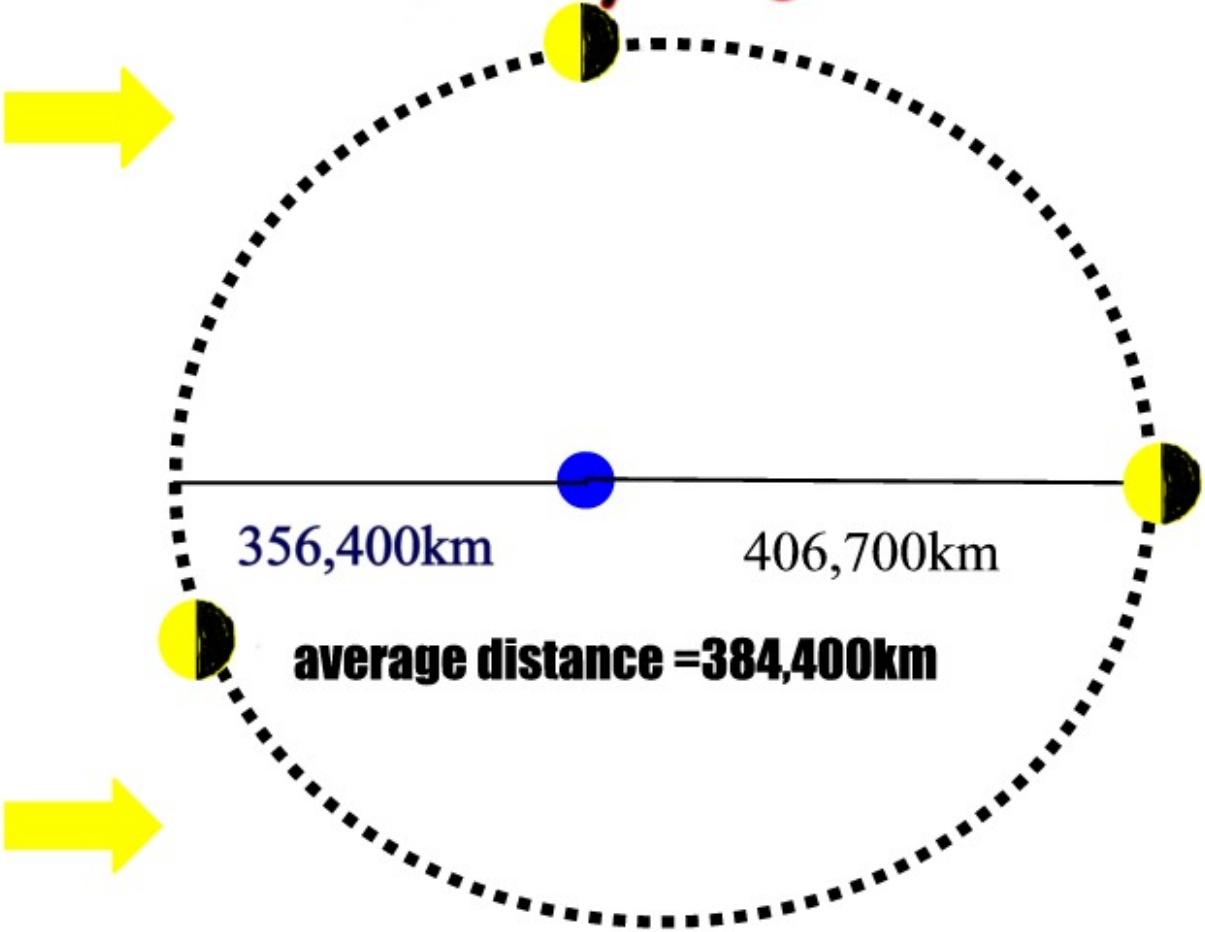


The Moon

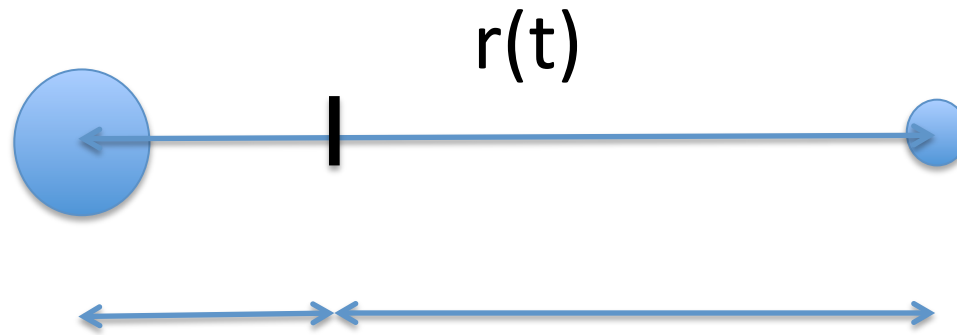
- Radius=1737 km
(0.27 that of Earth)
- Mass = $7.34E+22$ kg
(0.012 that of Earth)
- “Man-in-the-Moon”
features to be
discussed
- No sign of
atmosphere



Orbit of the Moon



Two body problem and the center of mass



$$r_1 = \left(\frac{m}{M + m} \right) r \quad r_2 = \left(\frac{M}{M + m} \right) r$$

Phases of the Moon

