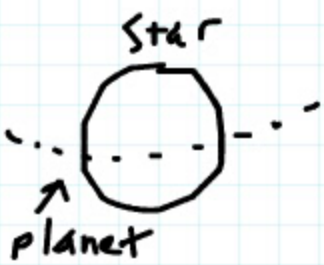
TESS

- follow-on to Kepler
- exoplanet finder



interesting orbit!

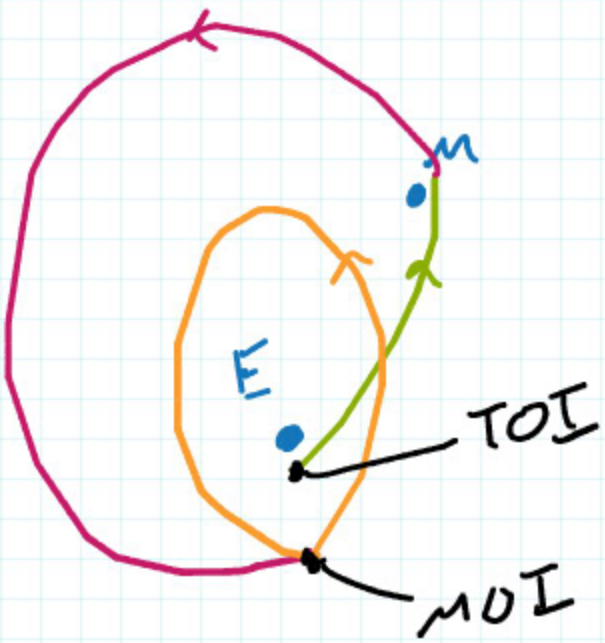
- 2:1 lunar resonant
- period half that of moon
- Earth-centered highly elliptical

why? extremely stable

- no stationkeeping necessary
- far from Earth - quiet environment

orbit design

- start in LEO
- use lunar swingby to change inc.
- perigee burn to establish resonance

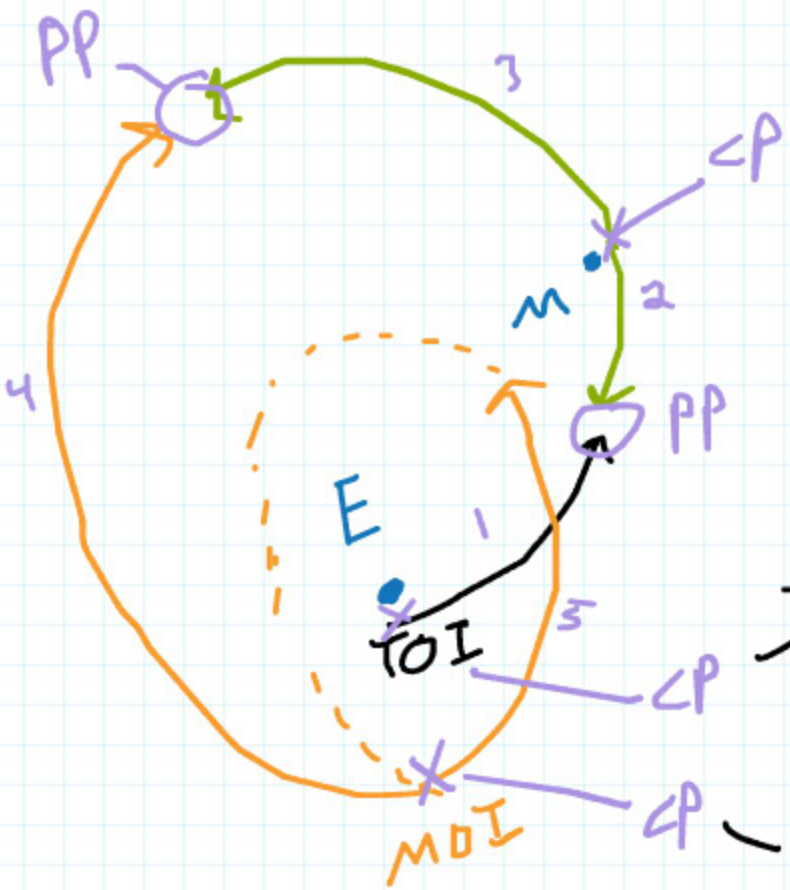


naive approach:
- start @ TOI
- design forward

won't work!
problem too sensitive

multiple-shooting

- divide problem into multiple segments
- patch together for final sol'n



- NO constraints

- @perigee
  - alt 285 km
  - inc 28.5°

- perigee 15 ER
- apogee 60 ER
- inc 10°

** constraints:
continuity
pos/vel
time