

Project: The Moons of Saturn

1. How many moons of Saturn can you observe?

Below is a figure demonstrating the size and direction of the orbits of the Saturnian satellites (the orbits are to scale in relation to the size of Saturn; the moons radii are not) as seen from both above the plane of orbit (Fig. 1), as well as our view from Earth (Fig. 2).

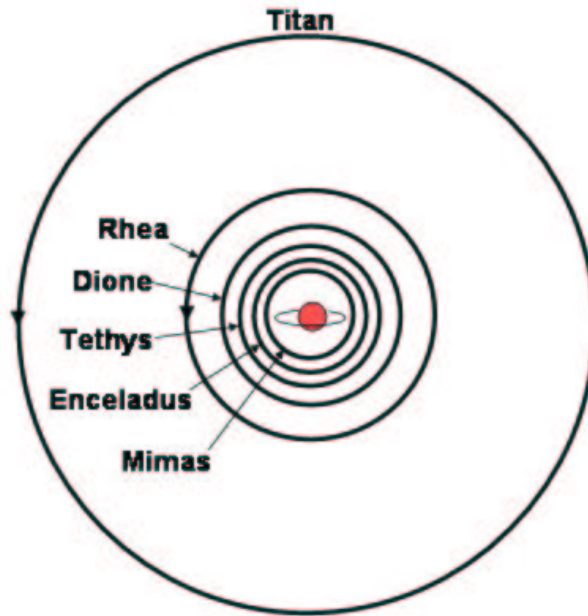


Figure 4: Figure 1

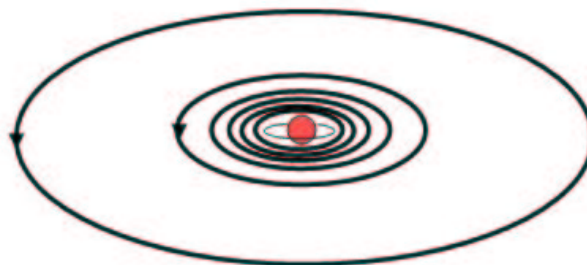


Figure 5: Figure 2

2. Based on these figures (and the fact that the moons may be in a different location than the ones shown), can you tell which moon(s) you observed? If so, label them in your diagram and plot their position on figure 1 above.

Below are two observations of Saturn and one of its moons, Titan.

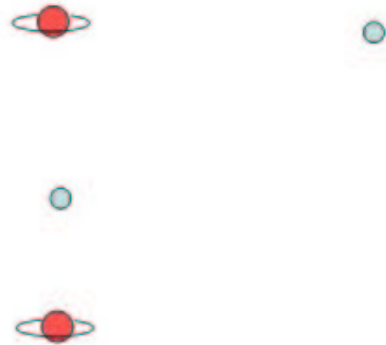


Figure 6: Figure 3

3. If the first observation was taken at 7PM on Feb. 18th, and the second observation was taken at 7PM on Feb. 22nd, what is the period of orbit of Titan?
4. Given Keplers third law, list the moons in orbit of increasing orbital period (shortest period first).
5. Tethys, another moon of Saturn, is about $1/4$ th as far from Saturn as Titan. Based on your answer to #3 and Keplers third law of planetary motion, estimate Tethys period of orbit.