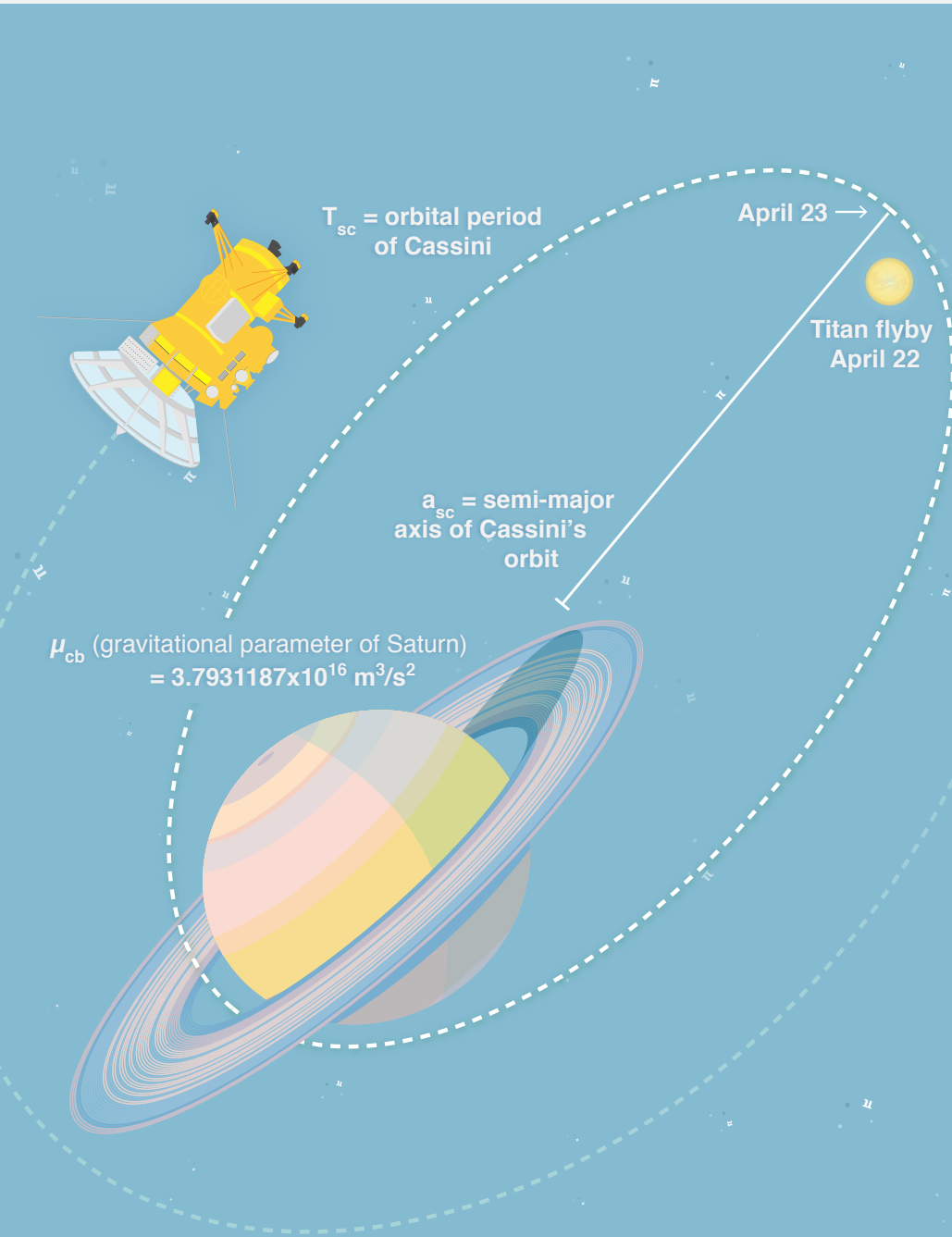


# π IN THE SKY<sup>4</sup>

You don't have to be a NASA rocket scientist to plot the trajectory for Cassini's daring orbit around Saturn. All you need is a little pi!

Discover more "π in the sky" math problems at:  
[jpl.nasa.gov/edu/nasapidaychallenge](http://jpl.nasa.gov/edu/nasapidaychallenge)



## FINALE FANFARE

In 2017, after more than 12 years at Saturn, the Cassini mission will come to an end with a plunge into Saturn. The finale is designed to keep Cassini from impacting and possibly contaminating any of Saturn's scientifically intriguing moons. First, mission operators have planned a daring series of orbits that will take Cassini closer to Saturn than ever before. Cassini will use the gravity of Saturn's moon Titan to alter its trajectory and fly into the gap between Saturn and its rings. It all begins with a flyby of Titan on April 22, putting Cassini on a new orbital path whose first apoapsis is on April 23. Then, it will complete 22 elliptical orbits with an average periapsis altitude of 63,022 km and an average apoapsis altitude of 1,274,828 km. A final flyby of Titan will place Cassini on a half-orbit trajectory for Saturn impact.

**Use Kepler's third law below to find approximately how many days each orbit will take. Approximately what day will Cassini dive into Saturn's atmosphere?**

$$a_{sc}^3 = \mu_{cb} \left( \frac{T_{sc}}{2\pi} \right)^2$$

LEARN MORE ABOUT CASSINI  
[saturn.jpl.nasa.gov](http://saturn.jpl.nasa.gov)