

**Warning: Lots of equations
coming up!**

Don't worry, you can handle it.

$$F_{centripetal} = \frac{M_{planet} v^2}{R}$$

$$F_{gravity} = G \frac{M_{planet} M_{Sun}}{R^2}$$

$$\frac{M_{planet} v^2}{R} = G \frac{M_{planet} M_{Sun}}{R^2}$$

$$\frac{v^2}{R} = G \frac{M_{Sun}}{R^2}$$

$$v^2 = G \frac{M_{Sun}}{R}$$

$$v = \frac{\text{distance}}{\text{time}} = \frac{2\pi R}{T}$$

$$\frac{4\pi^2 R^2}{T^2} = G \frac{M_{Sun}}{R}$$

$$\frac{T^2}{R^3} = \frac{4\pi^2}{GM_{sun}}$$

Diameter of Jupiter = 143000km
 $(1.43 \times 10^8 \text{ m})$

Europa 300000 s

$r = 6.7e8\text{m}$