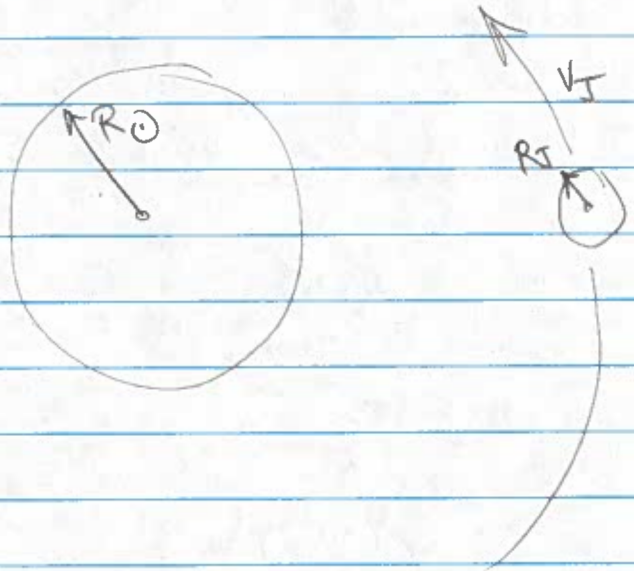
Exoplanets - detection methods

Transit

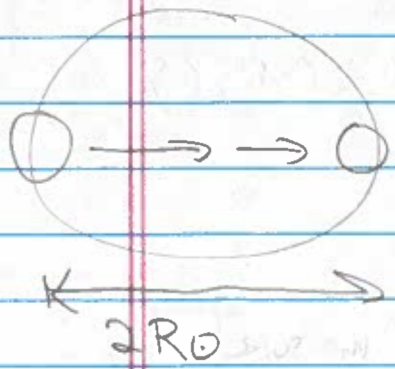


How much light would Jupiter block?

$$I_{block} = I_0\left(\frac{\pi R_J^2}{\pi R_\odot^2}\right) = I_0\left(\frac{R_J}{R_\odot}\right)^2 \approx I_0(0.1)^2$$

$$\approx \frac{1}{100} I_0$$

How long would this dip last?



$$t = \frac{2R_\odot}{v_J} = \frac{2(6.95\times10^8\,m)}{\frac{2\pi r_J}{P_J} = \frac{2\pi(1.5\times10^4\,m)/5.2\,AU)}{(4331\times86400\,s)}}$$

$$= \frac{1.39\times10^9\,m}{1.31\times10^4\,m/s} = 106{,}000\,s \approx 29\ hours$$