

## AST 250 – Spring 2019

### Homework Due: Monday April 8

32. The lightcurve for the transiting exoplanet Kepler-7b indicates that the flux from the star is reduced by 0.68% periodically by a planet on a 4.885 day orbit. Radial velocity measurements confirm it is a planet with 0.433 times the mass of Jupiter. Calculate the density of Kepler-7b and compare your answer to the density of water ( $1 \text{ g/cm}^3$  or  $1000 \text{ kg/m}^3$ ). Can you explain why it might have this density (Hint: also calculate the incident flux on the planet)? Some info about the star: G0V,  $M \sim 1.347 M_{\text{sun}}$ ,  $R \sim 1.843 R_{\text{sun}}$ ,  $L \sim 4.15 L_{\text{sun}}$ .

