

Below we write the mathematical formulas we used to calculate various parameters of an exoplanet candidate with the name TIC-399665349 and it's mother star:

To calculate the radius of the planet R_p we used the formula:

$(R_p/R_s)^2 = \Delta L/L = \text{drop of the luminosity of the mother star}$. The drop was calculated from the light curve: $\text{drop} = 0.00045$ and $R_s = 1.37171 R_{\text{sun}}$, we have: $R_p = 0.02909 R_{\text{sun}}$

To calculate the mass of the mother star we used the equation from the HR diagram: $(L/L_{\text{sun}}) = (M/M_{\text{sun}})^{3.5}$, so for $L_{\text{sun}} = 1$ and $L = 2.96$, we calculated the mass of the mother star to be: $M = 1.36349 M_{\text{sun}}$

R_s and L were obtained from here:

<https://www.universeguide.com/star/22449/tabit#related>