1) Read the following paper and **explain** how to theoretically determine the number density of galaxies at a specific redshift. **Discuss** the limitations of this method when comparing with observational data.

   https://iopscience.iop.org/article/10.3847/2041-8213/ac9310/pdf

2) Refer to Section 5.4 of the paper below to **explain** the theoretical approach for calculating the cosmic star formation rate density. **Discuss** the limitations of this method.

   https://arxiv.org/pdf/2108.01090

3) Using the aforementioned method, derive a formula to determine the number of halos that JWST NIRCam should observe at each redshift.