Exoplanet Name: _____

Prelab 10: Direct Imaging

Due **_Monday, December 2_** *at the start of class*
Must be handed in on paper to the assignment inbox
68 total points*

1) Quantitative Literacy Survey (10 points)
   Go to the website below and complete the survey. You will receive 10 points for completing it. Please try your your best!
   https://amherst.co1.qualtrics.com/jfe/form/SV_bdbj7EQiQgd3WgR

2) Read the descriptions of a handful of directly imaged exoplanets below thoroughly. Don't just go searching for the answers, as part of the point of this exercise is to get a sense for some of the interesting features of each planet and of the direct imaging method in general. In some cases, you might need to search through the links or poke around on the web to find all of the information that you need. (28 points)
   2M1207: http://apod.nasa.gov/apod/ap050510.html
   HR 8799: http://apod.nasa.gov/apod/ap081117.html AND
   http://keckobservatory.org/discovery_triples_total_number_of_stars_in_universe/
   Fomalhaut b: http://apod.nasa.gov/apod/ap081114.html
   Beta Pictoris: http://apod.nasa.gov/apod/ap100703.html
   51 Eri b: https://en.wikipedia.org/wiki/51_Eridani_b
   HD 106906: https://en.wikipedia.org/wiki/HD_106906_b
   HD 95086: https://en.wikipedia.org/wiki/HD_95086_b

Create a table for the directly imaged planets that includes:
   a) Mass of star it orbits in solar masses
   b) Mass of planet(s) in Jupiter Masses
   c) Planet-star distance(s) in AU
   d) Year of discovery
   e) Notes about the planet

3) What limits the ability of astronomers to find planets via direct imaging? Describe the obstacles in your own words. (5 points)

4) What kinds of exoplanets are most easily detected by this method and why? (5 points)

5) How are the planets we're detecting via direct imaging changing with time? Use specific examples from your table to justify your argument. (5 points)

6) Research your Exoplanet (15 points)
   Each of you was assigned an exoplanet name at the start of the semester. Some of these exoplanets are real and some are fictional.
   If you have a real exoplanet:
       In 2-3 paragraphs, describe its discovery method(s), any known properties of the planet, and anything else interesting or unique about it.
   If you have a fictional planet:
       In 2-3 paragraphs, describe the nature of your fictional world. In what ways is it similar to/different from the planets in our solar system? With what exoplanet discovery method(s) might it be detectable and why? When was the fictional work written/filmed and do you think that has anything to do with its nature?