ASTR 340 - Origin of the Universe 85 points
HOMEWORK #1 (Th Feb. 6, 2014)
due date: Thursday Feb 13 in class
READING: read Chapters 1 and 2 of the text.
All of the answers are in the textbook (or can be obtained from figures in the textbook)- I did not cover all of this in detail in the lectures.
You can hand the homework in as either/and/or 1) handwritten on paper, 2) Word 'processed' on paper 3) email to tiarahung@astro.umd.edu

1 Parallax of Proxima Centauri [25 pts, 5 pts each question]
a) Explain in your own words (or draw a diagram) explaining what is parallax.
b) The star nearest to the sun, Proxima Centauri, has annual parallax angle of 0.772 arcsec. How far from the Sun is it? Give your answer in parsecs* or light-years.
c) Estimate the annual parallax of a star distant 10 parsecs from the Sun.
d) Calculate the diurnal parallax of the moon- this is tricky, make an assumption that the moon is not moving in its orbit to calculate this. .
e) Did Tycho have any chance of measuring the parallax of Proxima Centauri or any other star?

2 Motion according to Aristotle [10 pts]
Aristotle believed that terrestrial objects naturally come to rest, and in order to maintain a constant state of motion a force must constantly be applied. What logical arguments and common-sense observations could you use to get him to change his mind?

3 Copernican revolution [20 pts]
a) Why didn't the idea of the heliocentric model become accepted for more than 1700 years after being proposed in the 3rd century BC by Aristarchus of Samos [5pts]
b) What led Copernicus to abandon the geocentric model? [5 pts]
c) List three attractive features and three weaknesses of the Copernican model as perceived by his fellow scientists (I mean in the context of his time).[10 pts]

4 Creation Myths [20 pts]
Research on the web or at the library about a creation myth of an other civilization, **not** discussed in our textbook. Write a short summary of what you learned (<1 page) highlighting links between their myth and what the Greeks or one of the other ancient civilizations discussed in the textbook thought..

5 Name and explain the main properties of a scientific hypothesis according to the scientific method. [10 points]

*Parsec was discussed briefly in class- see page 285 of text bookfor details