Assignment 1

Please type your responses into a word document, and submit that on UNM Learn. Be sure to number your responses 1, 2(a), etc. so I know which question you're answering, and show all work for partial credit.

1. *(2 points) Give four arguments that the Earth is round.*

2. *(6 points) Using Newton's reformulation of Kepler's third law, what is the mass of a planet that orbits the Sun with an average radius of 3 AU, completing an orbit every 4 years, in solar masses? (Remember, the mass of the Sun is 1 solar mass (1 $M_\odot$).)*

3. *(10 points) Suppose Eratosthenes found that the length of the shadow of the column and its base made an angle of 30.0° from the top of the column at Alexandria when the bottom of a well 882 km away by foot was sunlit. What would he have measured for the diameter of the Earth (with correct sig. figs)?*

4. *(5 points) By what factor would a person's weight decrease if Earth's radius doubled, but its mass stayed the same?*