

Name

Here are 3 homework problems. They are due one week from today (i.e. on Wed the 24th). You may work together, but don't copy. Each problem is worth 5 points, for a total of 15 points. Show your work.

1. Calculate the density of dry air at the sea level in the Standard Atmosphere, 15°C and 1013.6 mb.
2. Calculate the density in the Standard Atmosphere at the altitude of the top of Mt Everest (8.848 km), where the pressure is 314.8 mb. You will need to calculate the temperature from the altitude using the standard atmosphere lapse rate and surface temperature. Be sure to show the temperature calculation as an intermediate result.

3. It is a bright sunny day on *Sinus Meridiani* near the equator of Mars. The pressure is 6 mb and the temperature is a balmy 7°C . Assuming, for the sake of easy calculation, that the Martian “air” is 100% CO_2 , what is the density? You will either have to use the universal gas law or calculate the gas constant for the Martian atmosphere. You will also have to look up or calculate its molecular weight of CO_2 . Again, show intermediate steps.