Concepts of Science   **NAME**_____
Exam 1 October 11, 1994   **Class Time_____   Lab Sec._____**
Seat No._____
When Solving Problems, be sure to show all work
1. If a man is 6 feet tall, What is his height in cm?

2. How much does a 5 pound sack of sugar weigh in grams?

3. The distance from the earth to the moon is 383,000 km. If the mass of the earth is 5.79 x 10^{24} kg and that of the moon is 7.22 x 10^{22} kg, calculate the force with which the earth and the moon attract one another.

4. Calculate the velocity necessary to keep the moon in a stable orbit around the earth at the above distance
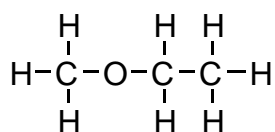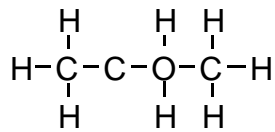
5. Galileo is considered by many to be the father of modern science.
Briefly explain how Galileo changed the way in which science is done.

6. a. The two structures below both have the formula C_3H_8O. However, one
is not a correct structure.   Indicate which is not correct and explain why.

```
    H      H  H                    H      H  H
    |      |  |                    |      |  |
H - C - O - C - C - H          H - C - C - O - C - H
    |      |  |                    |      |  |
    H      H  H                    H      H  H

        A                              B
```

b. Calculate the molecular weight of **A** or **B**.

7.   The chart below lists several classical concepts which we now know are no longer accurate.   Complete the chart by listing our current view of the concept and the name of the individual responsible for this current view and what he observed or did.

Classical View	Current View	Person responsible for change and what he observed or did
Solar system is geocentric		
The heavenly bodies are perfect		
The panets move in circular orbits		

8.   We have seen that the concept of models is very important in science. Both Rutherford and Bohr proposed models of the atom which lend themselves to simple pictures.   In the space below, sketch both models and indicate why one was an improvement over the other.

Useful Information:

Meter = 39.37 inches = 1.094 yards   Quart = 0.9463 liter
Yard = 0.9144 meter   Pound = 0.453 kilograms
Mile = 1.609 kilometers   Ounce = 28.53 gram
Inch = 2.54 centimeter