Physics name _____ hr ___

GOLD STANDARD PART 2 sheet # ____

Here are my suggested Gold Standard Unit Analysis steps:

1.) Circle the givens in the problem.

2.) Identify what each one is and give each one a symbol (either Δx, Δs, Δy, v_f, v_o, v, t, a, ω, r, F, m, etc.)

3.) Draw a simple sketch of what is going on. Label the sketch with the numbers and units from the problem.

4.) Using the symbols ONLY write the equation ($\Delta x = vt$; $\Delta s = vt$, $v = \omega r$, $\Delta x = 1/2at^2$, $K = 1/2mv^2$, etc.)

5.) Once you figure out what the problem is looking for . . . isolate that symbol in the symbol equation.

6.) Write the coefficients and these symbols in the boxes above the Unit Analysis in the correct relationship (like squared, or cubed or inversed, etc.)

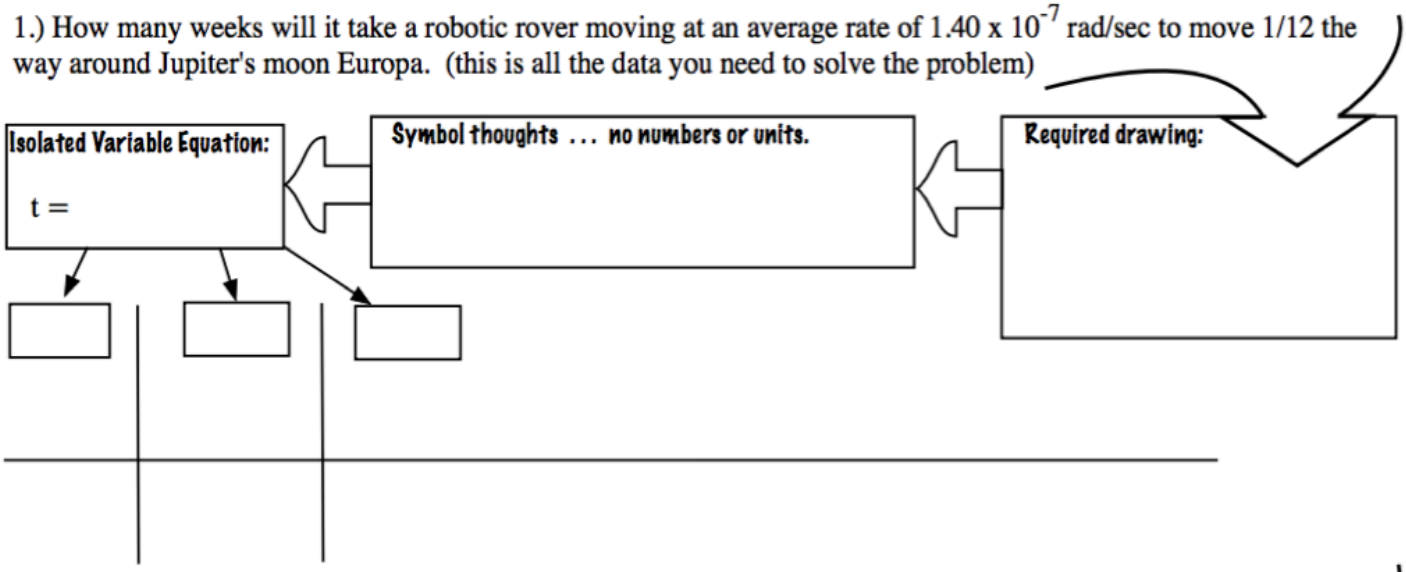
7.) Place the numbers and their units in the Unit Analysis below the symbol boxes in the same state as the symbol. Do NOT do ANY pre Unit Analysis multiplication, division, or simplification. Insert the given numbers into the unit analysis line exactly as it appears in the problem.

8.) Now play the game . . . "kill" all the unwanted units by methodically multiplying clever forms of one (conversions) through the rest of the problem (be careful because sometimes the conversions are squared or cubed).

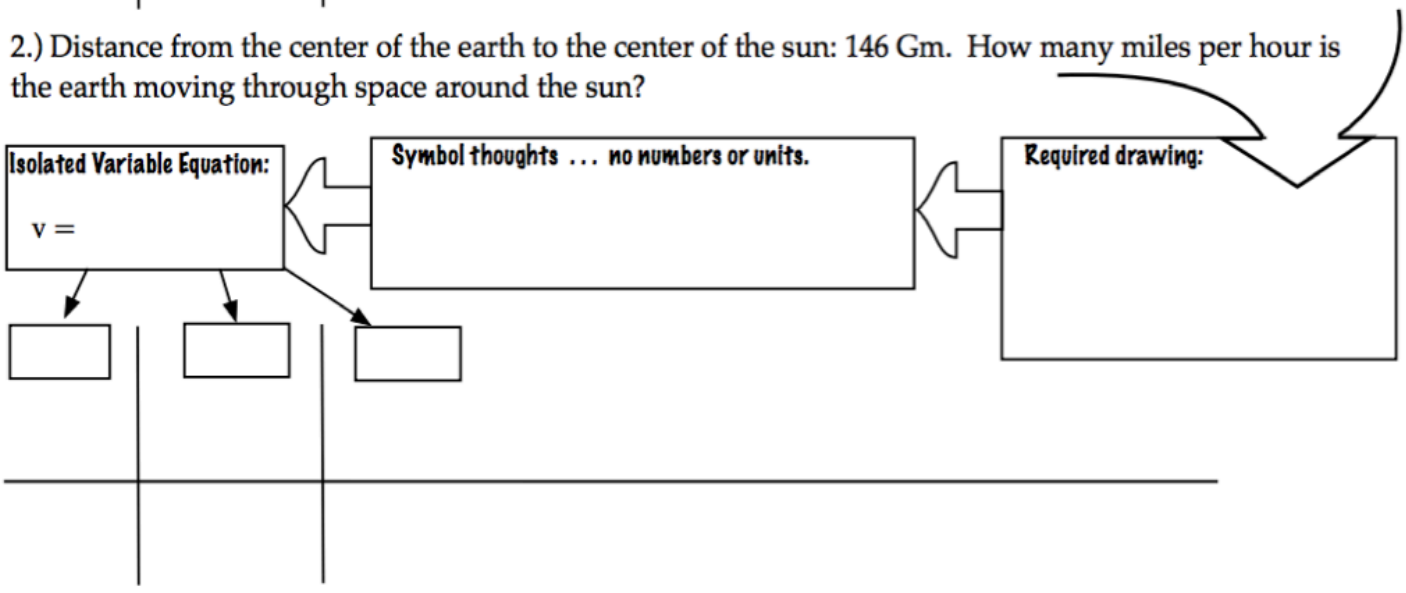
9.) Once all unwanted units are "killed" by the clever conversions, draw a double vertical line at the end, then multiply all numbers on top. Place that number in the numerator in the answer. Multiply all the numbers on bottom and place that number in the denominator.

10.) Divide the answer's numerator by the answer's denominator and write down that number making sure you include the correct units. YEA! You're done. Go take a nap.

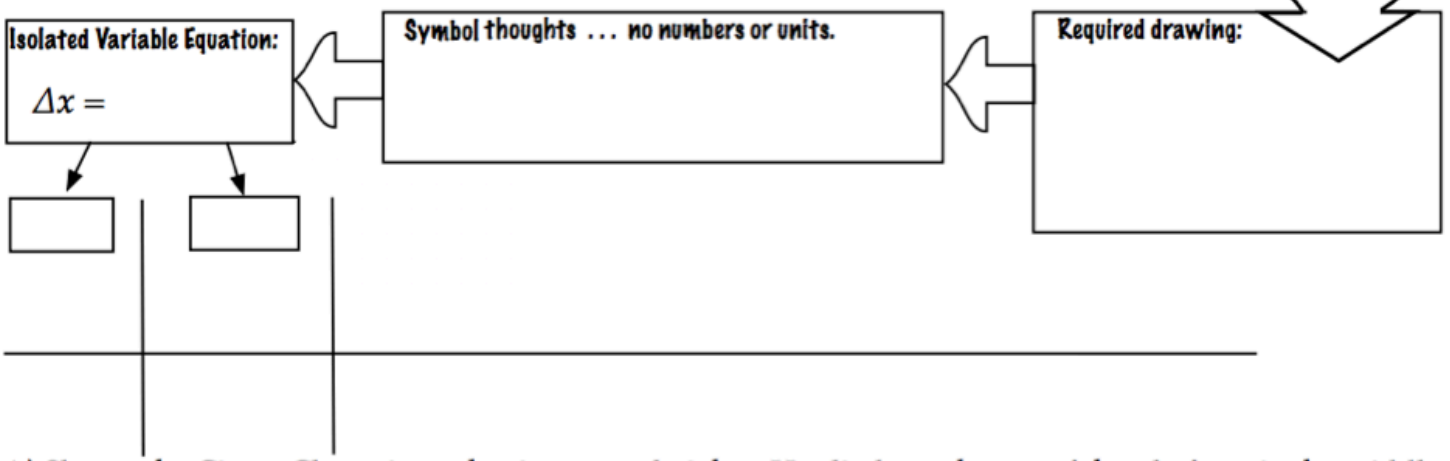
1.) How many weeks will it take a robotic rover moving at an average rate of 1.40×10^{-7} rad/sec to move 1/12 the way around Jupiter's moon Europa. (this is all the data you need to solve the problem)



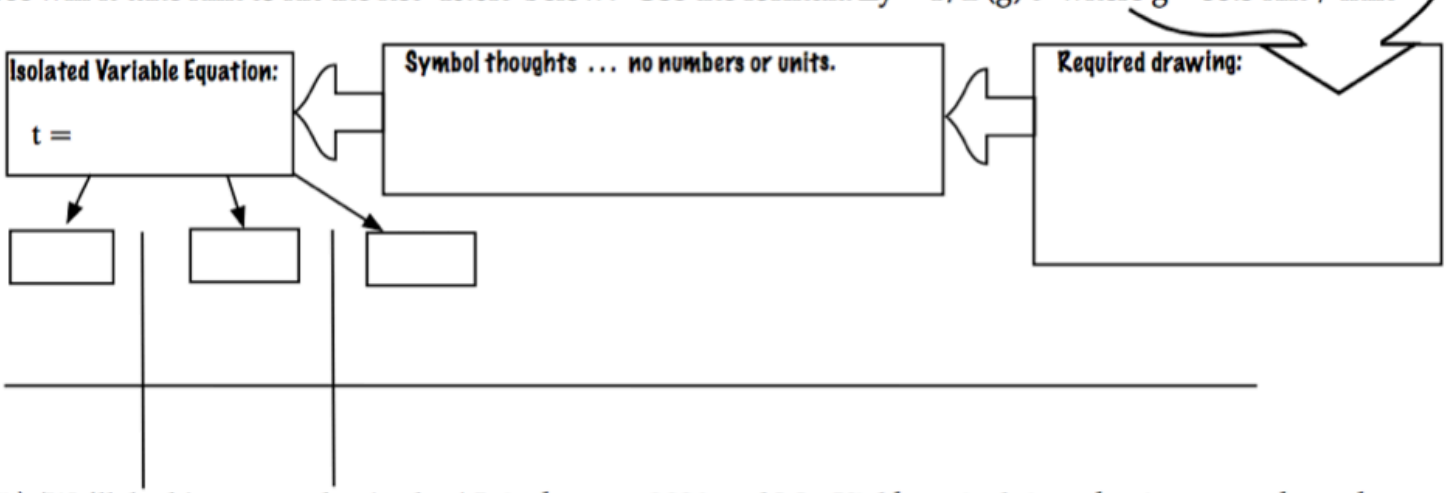
2.) Distance from the center of the earth to the center of the sun: 146 Gm. How many miles per hour is the earth moving through space around the sun?



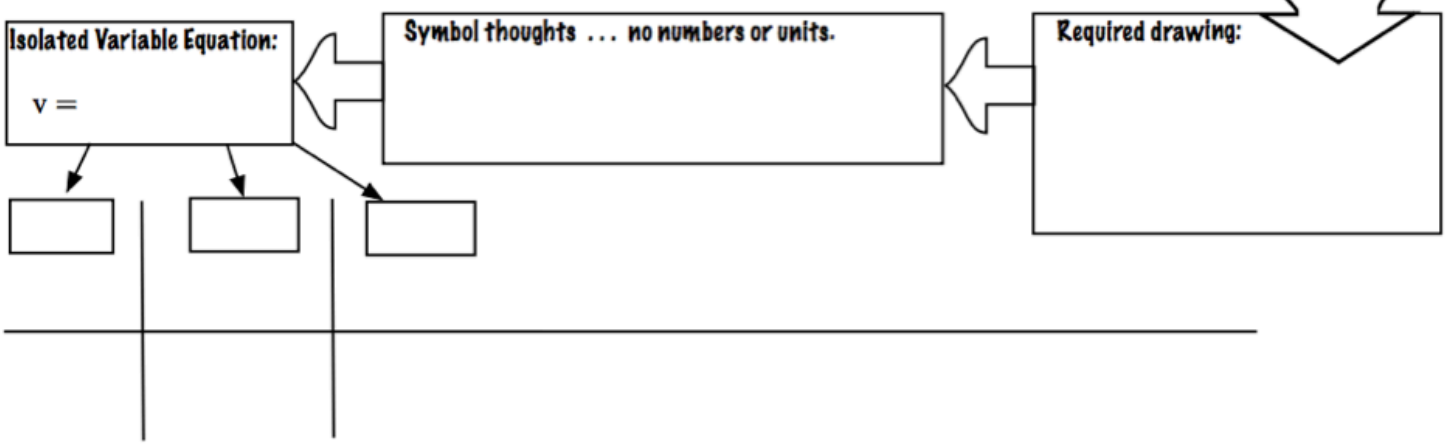
3.) It's 1977 and Mr. Askey is preparing for his turn at Dallas Dallas the Disco Palace in Norman. He chooses the Funky Chicken from his repertoire of Disco moves and dances down the aisle between fellow righteous brothers and sisters. How many feet will he move in 2.0 min if his average velocity is 5.00×10^{-4} mm/microsecond?



4.) Slappy the Circus Clown is not having a good night. He climbs to the top of the platform in the middle of the big tent around 3:00 in the morning to get a little alone time. He falls asleep and rolls off. How many sec will it take him to hit the net 40.0ft below? Use the formula $\Delta y = 1/2\ (g)\ t^2$ where $g = 35.3$ km / min^2



5.) *(We'll do this one together in class)* It is the year 2031 and Ms. Kickham is doing physics research on the ISS2. She is orbiting the earth at an altitude of 156miles. The ISS2 orbits the earth every 90min. What is her speed in miles per hour? ($R_E = 6{,}370$km , 1 mi = 5280ft, 0.305m = 1 ft) Hint: In this one you will have to do a UA addition inside a cell. A baby Unit Analysis inside a Unit Analysis . . . YES!!



answers: 1.) 6.18wks 2.) 65,000 mph 3.) 197 ft 4.) 1.58 sec 5.) In Class