

HIP 01

COMMENTS:

- Problem 1 will not be graded, but I will not look at your homework if you do not give this question reasonable effort.
- Problem 2 is the HIP01 problem this week. It will be graded based on the rubric found online http://fliphysics.com/wp-content/uploads/HIP_EnhGuidlines_01052017.pdf
 - Part e., the enhancement.... You basically have two options: 1) Use the concepts from the HIP problem to formulate your own problem that has some sort of significant connection to your life/interests. For example, since this HIP contains unit conversions and estimates you might be very curious about how many blades of grass are in your back yard and how much they weigh in units of your vehicle or yourself. 2) Expand on the HIP question in a way that aligns with your interests. For example, perhaps you live a bit more north from Corvallis and got more than 3 inches of snow, you might wonder how much rain would your snowfall amount be equivalent to and how many trunks of your car you can fill up with this amount.
- Problem 3 is a list of suggested Student Workbook Volume 1 problems to practice in your spare time. You do not need to turn these in, they will not be graded.

- (1) A little math warming up: Write a story problem for which these are the equations you need to solve. There are an infinite number of solutions but pay attention to what reality the equations are describing. So often we solve math problems and we do not even know why...physics is different (-:

$$2a + b = 15$$

$$2b - 3a = 16$$

- (2) If you live in Corvallis you were fortunate enough to experience the great blizzard of 2017, which coated the ground with a whopping 3 inches of snow last weekend. It's often interesting to compare snowfall to rainfall; based on the temperature during the snowstorm, roughly 10 inches of snow is equivalent to about 1 inch of rain. This equivalence is not set in stone; as the temperature drops less moisture is in the atmosphere, thus you could see upwards of 40 inches of snow being equivalent to 1 inch of rain. For our purposes, the 10 to 1 ratio is sufficient.
- a. Based off of the amount of snow Corvallis got and the snowfall to rain equivalence, estimate the number of raindrops that fell would have fallen on Corvallis if the snowstorm was a rainstorm. Clearly state all assumptions and document any references you use.
 - b. Using your assumption from part (a), how many pint glasses could this full up?...
 - c. ...how many Olympic-size swimming pools would this fill up?
 - d. How long would you have to let your faucet run to fill up all of the swimming pools?
 - e. Enhancement.

- (3) CH 1: 17, 18