

Grams-to-grams & percent yield.

CleMistry: <http://genest.weebly.com>

Stop in for help every day at lunch and Tues & Thurs after school!



HERE ARE HINTS!
Name _____
Period _____

1. Find the number of grams of O₂ which are needed to produce 20.0 g of P₂O₅ at STP, according to this balanced equation:



HINT:

$$20.0g P_2O_5 \times \left(\frac{\text{mol } P_2O_5}{\text{grams } P_2O_5} \right) \times \left(\frac{\text{mol } O_2}{\text{mol } P_2O_5} \right) \times \left(\frac{\text{grams } O_2}{\text{mol } O_2} \right) =$$

2. For this balanced reaction, calculate the following



- a. If 3.03×10^{-5} grams of CaH₂ react, how many grams of water react?

___ g CaH ₂	___ mol CaH ₂	___ mol H ₂ O	___ grams H ₂ O	=
	___ g CaH ₂	___ mol CaH ₂	___ mol H ₂ O	

- b. If 0.746 moles of water react, how many moles of CaH₂ will react?

HINT: ONE STEP CONVERSION, USING THE COEFFICIENTS

- c. If 0.746 GRAMS of water react, how many GRAMS of CaH₂ will react?

HINT: THREE STEP CONVERSION, USING THE PERIODIC TABLE

Hints: On 2(b) just do a one step conversion using the coefficients but on 2(c) calculate the same as on 2(a)

3. Using the Hoffman apparatus for electrolysis, a chemist decomposes 36 g of water into its gaseous elements. How many grams of hydrogen gas should she get (theoretical yield)?

HINT first write and balance an equation



HINT then do a grams-to-grams conversion
LIKE IN PROBLEM #1

4. Suppose 4.61 g of zinc was allowed to react with hydrochloric acid to produce zinc chloride and hydrogen gas.

a. How much zinc chloride should you get?

this is called your "calculated yield." Use it in Part B, below

b. Suppose that you actually recovered 8.56 g of zinc chloride. What is your percent yield?

that's measured with a scale/balance

HINT: Recall from today's notes the formula is

$$\% \text{ yield} = \frac{\text{measured wt of product}}{\text{calculated weight of product}} \times 100$$