

Intro to Stoichiometry Worksheet Day 1

YOU MUST SHOW ALL WORK AND COMPLETE ON NOTEBOOK PAPER!

PART 1 -

Balance the following equations then determine the mole to mole ratio between the underlined substances.

1. ___ N₂ + ___ H₂ → ___ NH₃ Ratio: ___ mole hydrogen to ___ mole ammonia
2. ___ KClO₃ → ___ KCl + ___ O₂ Ratio: ___ mole KClO₃ to ___ mole KCl
3. ___ NaCl + ___ F₂ → ___ NaF + ___ Cl₂ Ratio: ___ mole Fluorine to ___ mole NaF
4. ___ H₂ + ___ O₂ → ___ H₂O Ratio: ___ mole Hydrogen to ___ mole water
5. ___ Pb(OH)₂ + ___ HCl → ___ H₂O + ___ PbCl₂ Ratio: ___ mole Pb(OH)₂ to ___ mole water

CALCULATIONS-SHOW ALL WORK. WRITE GIVEN AND ASKED FOR. SHOW SET UP OF PROPORTIONS.

PART 2 -

Solve the following mole:mole problems

1. **2 NaOH + H₂SO₄ → 2 H₂O + Na₂SO₄**
 - a) How many moles of water will be formed if you start with 2.54 moles of sodium hydroxide?
 - b) How many moles of sodium sulfate will be formed if you start with 3.46 moles of H₂SO₄?
 - c) How many moles of sodium hydroxide is needed to produce 3.67 moles of water?
 - d) How many moles of H₂SO₄ is needed to produce 6.78 moles of Na₂SO₄?

Solve the following mole:mass problems

2. **Pb(NO₃)₄ + 2 Li₂SO₄ → Pb(SO₄)₂ + 4 LiNO₃**
 - a) How many moles of lithium nitrate will be produced from 5.67 g of lithium sulfate?
 - b) How many **mg** of lead (IV) sulfate will be produced from 7.89 moles of lithium sulfate?
 - c) How many g of lithium sulfate are required to form exactly 12.5 moles of lead (IV) sulfate?
 - d) How many moles of lead (IV) nitrate are needed to produce 3.45 g of lithium nitrate?

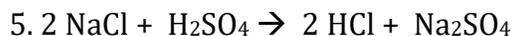
3. Nitrogen monoxide reacts with oxygen gas to produce nitrogen dioxide

- a) How many grams of nitrogen dioxide are produced by 4.67 moles of oxygen?
- b) How many moles of nitrogen monoxide are needed to produce 2.34 moles of nitrogen dioxide?
- c) How many moles of oxygen are needed to produce 7.98 moles of nitrogen dioxide?

Solve the following mixed stoichiometry problems



- How many moles of mercury will be produced from 6 grams of copper?
- How many moles of copper (II) nitrate will be produced from 4.5 moles of mercury (I) nitrate?
- How many grams of copper are needed to produce 8.45 grams of copper (II) nitrate?
- How many grams of mercury (I) nitrate are needed to produce 10.3 moles of copper (II) nitrate?



- How many grams of HCl will be produced from 2.5 moles of sodium chloride?
- How many moles of sodium sulfate will be produced from 7.89 grams of H_2SO_4 ?
- How many grams of NaCl are needed to make 5.6 grams of Na_2SO_4 ?
- How many moles of H_2SO_4 are needed to make 6.78 moles of HCl?



- How many moles of water are produced from 4.5 moles of oxygen?
- How many grams of chlorine are produced from 7.8 grams of HCl?
- How many moles of oxygen are needed to produce 9.0 grams of water?
- How many grams of HCl are needed to produce 5.67 moles of Cl_2 ?

7. Methane undergoes combustion

- How many grams of carbon dioxide are produced from 5.6 grams of CH_4 ?
- How many moles of water are produced from 3.4 grams of oxygen?
- How many grams of CH_4 are needed to produce 6.78 moles of CO_2 ?
- How many moles of O_2 are needed to produce 4.6 moles of water?

Block 3

Part 1 # 1 – 5

Part 2 # 1 a)b) #2 a)b) # 6 a) for Friday

Blocks 1 & 4

Part 1 # 1 – 5

Part 2 # 1 a)b) # 3 all # 5 a)b) #7a)