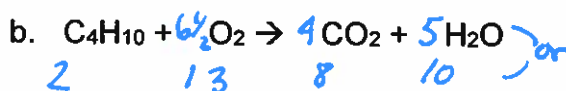


# Stoichiometry review 2 ans

1. Name:
- KI potassium iodide
  - SnBr<sub>2</sub> Tin (II) bromide
  - PCl<sub>3</sub> phosphorus Trichloride
  - CrPO<sub>4</sub> chromium (III) phosphate

2. Determine the formula for:
- lead (II) sulfate PbSO<sub>4</sub>
  - ammonium chromate (NH<sub>4</sub>)<sub>2</sub>CrO<sub>4</sub>
  - sodium sulfide Na<sub>2</sub>S
  - sodium hydroxide NaOH

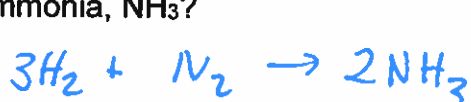
2. Balance:
- a.  $P_4O_{10} + 6H_2O \rightarrow 4H_3PO_4$



3. How many moles of sodium correspond to  $3.56 \times 10^{26}$  atoms of sodium?

$$\frac{1 \text{ mol.}}{x} = \frac{6.02 \times 10^{23}}{3.56 \times 10^{26}} \quad \boxed{591 \text{ moles}}$$

4. How many moles of H<sub>2</sub> and N<sub>2</sub> can be formed by the decomposition of 0.250 mol of ammonia, NH<sub>3</sub>?



$$\frac{3 \text{ mol } H_2}{x} = \frac{2 \text{ mol } NH_3}{0.250 \text{ mol } NH_3} \quad \boxed{0.375 \text{ mol } H_2}$$

$$\frac{1 \text{ mol } N_2}{x} = \frac{2 \text{ mol } NH_3}{0.250 \text{ mol } NH_3} \quad \boxed{0.125 \text{ mol } N_2}$$

5. The incandescent white of a fireworks display is caused by the reaction of phosphorous (P<sub>4</sub>) with O<sub>2</sub> to give P<sub>4</sub>O<sub>10</sub>. (you must use the gram ratio)

- a. Write the balanced chemical equation for the reaction:  $P_4 + 5O_2 \rightarrow P_4O_{10}$   
& write out the balance gram ratio below it:
- 123.88      160.00      283.88

- b. How many grams of O<sub>2</sub> are needed to combine with 7.75g of P<sub>4</sub>?

$$\frac{123.88 \text{ g } P_4}{7.75 \text{ g } P_4} = \frac{160.00 \text{ g } O_2}{x} \quad \boxed{10.0 \text{ g } O_2}$$

- c. How many grams of P<sub>4</sub>O<sub>10</sub> can be made from 6.00g of O<sub>2</sub>?

$$\frac{160.00 \text{ g } O_2}{6.00 \text{ g } O_2} = \frac{283.88 \text{ g } P_4O_{10}}{x \text{ g } P_4O_{10}} \quad \boxed{10.6 \text{ g } P_4O_{10}}$$

- d. How many grams of P are needed to make 7.46g P<sub>4</sub>O<sub>10</sub>?

$$\frac{123.88 \text{ g } P_4}{x \text{ g } P_4} = \frac{283.88 \text{ g } P_4O_{10}}{7.46 \text{ g } P_4O_{10}} \quad \boxed{3.26 \text{ g } P_4}$$

6. Consider this neutralization reaction:  $2HCl + Mg(OH)_2 \rightarrow MgCl_2 + 2H_2O$   
What mass of Mg(OH)<sub>2</sub> is required to neutralize 4 moles of HCl?

$$\frac{2 \text{ mol } HCl}{4 \text{ mol } HCl} = \frac{1 \text{ mol } Mg(OH)_2}{x} \quad 2 \text{ mol } Mg(OH)_2$$

$$\frac{1 \text{ mol } Mg(OH)_2}{2 \text{ mol } Mg(OH)_2} = \frac{58.33 \text{ g } Mg(OH)_2}{x \text{ g } Mg(OH)_2} \quad \boxed{1 \times 10^2 \text{ g } Mg(OH)_2}$$