Stoichiometry Practice Problems Answers

1. How many grams of acetylene (C_2H_2) are produced if you have 5.00 g CaC₂?

 $CaC_{2\,(s)} + 2 H_2O_{(l)} \rightarrow C_2H_{2\,(g)} + Ca(OH)_{2\,(aq)}$

$2.03g\ C_2H_2$

2. How many grams of H_3PO_4 react with excess calcium carbonate to produce 3.74 g Ca₃(PO₄)₂?

 $3 \operatorname{CaCO}_{3(s)} + 2 \operatorname{H}_{3}\operatorname{PO}_{4(aq)} \rightarrow \operatorname{Ca}_{3}(\operatorname{PO}_{4})_{2(aq)} + 3 \operatorname{CO}_{2(g)} + 3 \operatorname{H}_{2}\operatorname{O}_{(l)}$

2.36g H₃PO₄

3. Calculate the number of grams of carbon dioxide formed when $0.773 \text{ g H}_2\text{O}$ is produced.

 $3 \text{ CaCO}_{3 (s)} + 2 \text{ H}_{3}\text{PO}_{4 (aq)} \rightarrow \text{Ca}_{3}(\text{PO}_{4})_{2 (aq)} + 3 \text{ CO}_{2 (g)} + 3 \text{ H}_{2}\text{O}_{(l)}$

1.89g CO₂

4. When 15.0 g Sb₂S₃ reacts with an excess of Fe, how many grams of Sb are produced?

 $Sb_2S_{3(s)} + 3Fe_{(s)} \rightarrow 2Sb_{(s)} + 3FeS_{(s)}$

10.75g Sb

5. If this reaction produces 9.84 g Sb, how many grams of Fe are needed?

 $Sb_2S_{3(s)} + 3Fe_{(s)} \rightarrow 2Sb_{(s)} + 3FeS_{(s)}$

6.77 g Fe

6. How many grams of zinc are needed to react with 1.49 g HNO₃?

 $4 Zn_{(s)} + 10 HNO_{3 (aq)} \rightarrow 4Zn(NO_{3})_{2 (aq)} + NH_{4}NO_{3 (aq)} + 3H_{2}O_{(l)}$

0.619g Zn

7. How many grams of HNO₃ are needed to form 29.1 g NH₄NO₃? 4 Zn_(s) + 10 HNO_{3 (aq)} \rightarrow 4Zn(NO₃)_{2 (aq)} + NH₄NO_{3 (aq)} + 3H₂O (l)

229 g NHO₃