

Stoichiometry

1 marshmallow + 4 chocolate chips + 2 crackers → _____

If I have 6 marshmallows and I want to use them all up:

- How many s'mores can I make? _____
- How many chocolate chips will I need? _____
- How many crackers will I need? _____

Show the math to determine number of crackers needed:

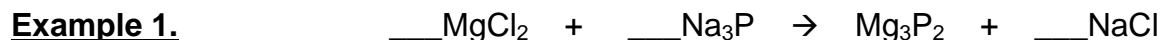
Stoichiometry:

- _____ in balanced chemical equations tell you the quantities needed for a reaction, and how much product is produced.



- Coefficients can be read as either # of _____ or _____.
 - _____ are ratios between the coefficients in an equation
- The mole ratios for the above equation are:

- Mole ratios can be used to find the amount of _____ needed or to predict the amount of _____ made.
- Write the ratio as a conversion factor as the unknown/known



a) If 9 mol of MgCl_2 is consumed, how many mol NaCl is produced?

b) If 9 mol of MgCl_2 is consumed, how many mol of Na_3P react?

c) If 3.2 mol of Na_3P react, what mass of Mg_3P_2 is produced?

d) If 10 g of NaCl was produced, how many moles of Na_3P was reacted?

Stoichiometry Practice Problems:

1. Consider the following reaction: $_H_{2(g)} + _O_{2(g)} \rightarrow _H_2O_{(l)}$
- Write out all the mole ratios
 - How many moles of O_2 are required to react with 100 moles of H_2 ?
 - How many moles of water are formed when 2478 moles of O_2 react?
 - How many moles of H_2 are required to react completely with 6.02×10^{23} moles of O_2 ?
2. Aluminum bromide can be prepared by reacting small pieces of aluminum foil with liquid bromine, as shown in this equation: $_Al_{(s)} + _Br_{2(l)} \rightarrow _AlBr_{3(g)}$
- Balance the equation
 - How many moles of bromine are needed to produce 5 mol of aluminum bromide?
 - How many moles of aluminum are needed to produce 5 mol of aluminum bromide?