

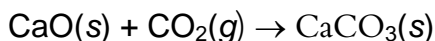
QUIZ

Chemical Calculations

1. Which of the statements about mole ratios are **true**? Select all that apply.

- ☒ **A.** Mole ratios include coefficients from a balanced chemical equation.
- ☐ **B.** Mole ratios do not include stoichiometric coefficients.
- ☐ **C.** Mole ratios can only be formed between two products.
- ☐ **D.** Mole ratios can only be formed between two reactants.
- ☒ **E.** Mole ratios can be formed between any combination of reactants and/or products.
- ☐ **F.** Mole ratios always have reactants in the numerator and products in the denominator.

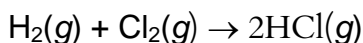
2. This chemical reaction follows the law of conservation of mass.



How much CaCO_3 will be formed if 2.2 grams of CaO are used for this reaction? Assume there are enough reactants to complete the reaction. The final answer should be rounded to one place after the decimal point.

- ☐ **A.** 1.1 grams
- ☐ **B.** 2.2 grams
- ☒ **C.** 3.9 grams
- ☐ **D.** 4.3 grams

3. This chemical reaction follows the law of conservation of mass.

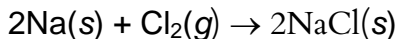


If 3.7 liters of Cl_2 are used for this reaction, how much HCl will be formed? Assume there are enough reactants to complete the reaction and assume the reaction occurs at STP.

- ☐ **A.** 1.3 liters
- ☐ **B.** 3.7 liters
- ☒ **C.** 7.4 liters
- ☐ **D.** 9.3 liters

Read the passage and use the equation to answer the next two questions.

A group of food scientists is developing a new line of seasonings that are low in salt (NaCl). As part of their research, they synthesize a batch of salt by reacting sodium (Na) and chlorine (Cl₂) according to the given reaction.

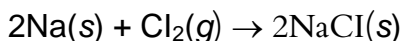


4. To make this salt batch, the scientists added 3.2 moles of Cl₂ to Na. Assume that there are enough reactants to complete the reaction. Determine the number of moles and molecules of NaCl that are produced.

6.4 moles of NaCl

3.9×10^{24} molecules of NaCl

5. Which of the given mole ratios are possible for the salt formation equation?



A. Na:Cl₂

B. 2Na:Cl₂

C. Cl:2NaCl

D. Na₂:NaCl

E. Cl₂:2NaCl

F. 2Na:2NaCl