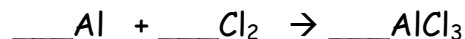


Answer each of the following questions using the equation provided. BE SURE TO BALANCE EACH EQUATION BEFORE SOLVING ANY PROBLEMS. SHOW ALL WORK.

1. In a reaction between the elements aluminum and chlorine, aluminum chloride is produced.



- a. 2 moles of Al will react with \_\_\_\_\_ mole(s) of  $\text{Cl}_2$  to produce \_\_\_\_\_ mole(s) of  $\text{AlCl}_3$ .
- b. How many grams of  $\text{AlCl}_3$  will be produced if 2.50 moles of Al react?
- c. How many moles of  $\text{Cl}_2$  must react to produce 12.3 g of  $\text{AlCl}_3$ ?
- d. How many grams of aluminum will react with 3.4 moles of chlorine?
- e. If 17 grams of aluminum react, how many moles of aluminum chloride will be produced?

2. The ammonia (NH<sub>3</sub>) used to make fertilizers for lawns and gardens is made by reacting nitrogen and hydrogen according to the following reaction.



- Determine the mass in grams of NH<sub>3</sub> formed from 1.34 moles of nitrogen.
- What is the mass in grams of hydrogen required to react with 1.34 moles of nitrogen?
- How many moles of nitrogen are required to produce 11.7 moles of NH<sub>3</sub>?
- How many moles of nitrogen are required to produce 11.7 grams of NH<sub>3</sub>?
- How many grams of hydrogen are required to form 3.5 moles of NH<sub>3</sub>?