

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

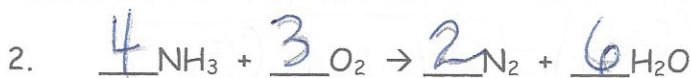


a. 2 moles of NO will react with 1 mole(s) of O₂ to produce 2 mole(s) of NO₂.

b. $? \text{ moles NO}_2 = 3.6 \text{ moles O}_2 \times \frac{2 \text{ moles NO}_2}{1 \text{ moles O}_2} = 7.2 \text{ mole NO}_2$

c. How many moles of NO must react to form 4.67 moles of NO₂?

$$4.67 \text{ mole NO}_2 \times \left(\frac{2 \text{ mol NO}}{2 \text{ mole NO}_2} \right) = 4.67 \text{ mol NO}$$



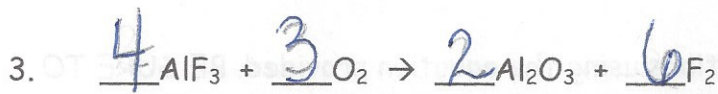
a. 20 moles of NH₃ are needed to produce 30 moles of H₂O.

$$(20 \text{ mol NH}_3) \times \left(\frac{6 \text{ mol H}_2\text{O}}{4 \text{ mol NH}_3} \right) = 30 \text{ mol H}_2\text{O}$$

	R	P
N	4	24
H	312	212
O	26	6

b. How many moles of N₂ will be produced if 3.5 moles of O₂ react?

$$(3.5 \text{ mol O}_2) \times \left(\frac{2 \text{ mol N}_2}{3 \text{ mol O}_2} \right) = 2.3 \text{ mol N}_2$$



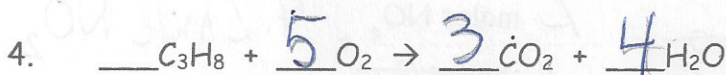
	R	P
Al	+24	24
F	36	26
O	26	36

a. 20 moles of AlF_3 will produce 30 moles of F_2 .

$$(20 \text{ mole } \text{AlF}_3) \times \left(\frac{6 \text{ mol } \text{F}_2}{4 \text{ mol } \text{AlF}_3} \right) = \boxed{30 \text{ mol } \text{F}_2}$$

b. 0.8 moles of AlF_3 will react with 0.6 moles of O_2 .

$$(0.6 \text{ mol } \text{O}_2) \times \left(\frac{4 \text{ mol } \text{AlF}_3}{3 \text{ mol } \text{O}_2} \right) = \boxed{0.8 \text{ mol } \text{AlF}_3}$$



	R	P
C	3	+3
H	8	28
O	20	37

a. How many moles of oxygen react with 11 moles of C_3H_8 ?

$$(11 \text{ mol } \text{C}_3\text{H}_8) \times \left(\frac{5 \text{ mol } \text{O}_2}{1 \text{ mol } \text{C}_3\text{H}_8} \right) = \boxed{55 \text{ mol } \text{O}_2}$$

b. How many moles of CO_2 are produced if 3.5 moles of water are produced?

$$(3.5 \text{ mol } \text{H}_2\text{O}) \times \left(\frac{3 \text{ mol } \text{CO}_2}{4 \text{ mol } \text{H}_2\text{O}} \right) = \boxed{2.6 \text{ mol } \text{CO}_2}$$



	R	P
O	26	36
Fe	+4	24

a. Fill in the following word equation-- 3 moles of oxygen gas react with 4 moles of iron to produce 2 moles of iron (III) oxide.

b. 4.5 moles of O_2 are required to produce 3.0 moles of iron (III) oxide.

$$(3 \text{ mol } \text{Fe}_2\text{O}_3) \times \left(\frac{3 \text{ mol } \text{O}_2}{2 \text{ mol } \text{Fe}_2\text{O}_3} \right) = \boxed{4.5 \text{ mol } \text{O}_2}$$