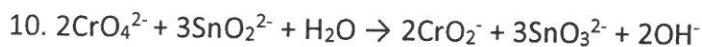


- How many grams of nitrogen are in 25.0 g of $(\text{NH}_4)_2\text{SO}_4$?
 - 5.3 g
 - 1.30 g
 - 0.19 g
 - 2.65 g
 - 14.0 g
- $3 \text{ Cu (s)} + 8 \text{ HNO}_3 \text{ (aq)} \rightarrow 3 \text{ Cu(NO}_3)_2 \text{ (aq)} + 2 \text{ NO (g)} + 4 \text{ H}_2\text{O (l)}$

Copper metal reacts with nitric acid according to the above equation. A 0.30 mole sample of copper metal and 10.0 mL of 12M nitric acid are mixed in a flask. How many moles of NO gas will form?

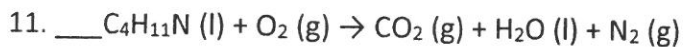
 - 0.060 mole
 - 0.030 mole
 - 0.010 mole
 - 0.200 mole
 - 0.100 mole
- When a hydrate of LiClO_4 is heated until all of the water is removed, it loses 33.7% of its mass. The formula for the hydrate is
 - $\text{LiClO}_4 \times 5\text{H}_2\text{O}$
 - $\text{LiClO}_4 \times 4\text{H}_2\text{O}$
 - $\text{LiClO}_4 \times 3\text{H}_2\text{O}$
 - $\text{LiClO}_4 \times 2\text{H}_2\text{O}$
 - $\text{LiClO}_4 \times \text{H}_2\text{O}$
- Gold(III) oxide, Au_2O_3 , can be decomposed to gold metal, Au, plus oxygen gas, O_2 . How many moles of oxygen gas will form when 221 g of solid gold(III) oxide is decomposed? The molar mass of gold(III) oxide is 442 g/mole.
 - 0.250 mole
 - 0.500 mole
 - 1.50 mole
 - 1.00 mole
 - 0.750 mole

5. $2 \text{KMnO}_4 + 5 \text{H}_2\text{C}_2\text{O}_4 + 3 \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + 2 \text{MnSO}_4 + 10 \text{CO}_2 + 8 \text{H}_2\text{O}$
How many moles of MnSO_4 are produced when 1.0 mole of KMnO_4 , 5.0 mole of $\text{H}_2\text{C}_2\text{O}_4$, and 3.0 mole of H_2SO_4 are mixed?
- 4.0 mole
 - 5.0 mole
 - 2.0 mole
 - 2.5 mole
 - 1.0 mole
6. $\text{KClO}_3 \rightarrow \text{KCl} + \text{O}_2$
After the above equation is balanced, how many moles of O_2 can be produced from 4.0 mol of KClO_3 ?
- 2.0 mole
 - 4.0 mole
 - 5.0 mole
 - 6.0 mole
 - 3.0 mole
7. Manganese, Mn, forms a number of oxides. A particular oxide is 63.2% Mn. What is the empirical formula for this oxide?
- MnO
 - Mn_2O_3
 - Mn_3O_4
 - MnO_2
 - Mn_2O_7
8. How many milliliters of 0.100 M H_2SO_4 are required to neutralize 50.0 mL of 0.200 M KOH ?
- 25.0 mL
 - 30.0 mL
 - 20.0 mL
 - 50.0 mL
 - 60.0 mL
9. Tungsten metal (W) may be prepared by reducing WO_3 with H_2 gas. How many grams of tungsten may be prepared from 0.0500 mol of WO_3 with excess hydrogen?
- 5.58 g
 - 0.500 g
 - 9.19 g
 - 184 g
 - 18.4 g



How many moles of OH^- form when 50.0 mL of 0.100M CrO_4^{2-} is added to a flask containing 50.0 mL of 0.100M SnO_2^{2-} and excess water?

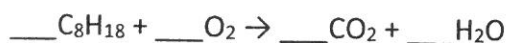
- a. 0.100 mole
- b. 6.66×10^{-3} mole
- c. 3.33×10^{-3} mole
- d. 5.00×10^{-3} mole
- e. 7.50×10^{-3} mole



When the above equation is balanced, the lowest whole number coefficient for O_2 is:

- a. 4
- b. 16
- c. 22
- d. 27
- e. 2

12. When the following equation is balanced, it is found that 1.00 mole of C_8H_{18} reacts with how many moles of O_2 ?



- a. 1.00 mole
- b. 10.0 moles
- c. 25.0 moles
- d. 37.5 moles
- e. 12.5 moles

13. An unknown hydrocarbon was burned in excess oxygen to form 176.04 grams of CO_2 and 54.06 grams of water. What is the possible molecular formula of the hydrocarbon?

- a. CH_4
- b. C_2H_2
- c. C_4H_3
- d. C_4H_6
- e. C_4H_{10}