

1. Given the equation: $4 \text{FeCr}_2\text{O}_7 + 8 \text{K}_2\text{CO}_3 + \text{O}_2 \rightarrow 2 \text{Fe}_2\text{O}_3 + 8 \text{K}_2\text{CrO}_4 + 8 \text{CO}_2$
- How many grams of FeCr_2O_7 would be needed to produce 44.0 g of CO_2 ?
 - How many grams of oxygen would be needed to produce 100.0 g of iron (III) oxide?
 - If 300.0 g of FeCr_2O_7 react, how many grams of oxygen will be consumed?
 - How many grams of iron (III) oxide will be produced from 300.0 g of FeCr_2O_7 ?
 - How many grams of potassium chromate are formed per gram (1.00) of potassium carbonate used?

2. Given the synthesis reaction of sulfur and oxygen to form sulfur dioxide:

Balanced equation:

- What mass of sulfur must be present to produce 100.0 g of sulfur dioxide?
- How many grams of oxygen must be present to produce 100.0 g of sulfur dioxide?

3. Given the following equation: $6 \text{NaOH} + 2 \text{Al} \rightarrow 2 \text{Na}_3\text{AlO}_3 + 3 \text{H}_2$

- How many grams of aluminum is required to produce 17.5 g of hydrogen?
- How many grams of Na_3AlO_3 can be formed from 165.0 g of sodium hydroxide?
- How many moles of sodium hydroxide are required to produce 3 g of hydrogen?
- How many moles of hydrogen can be produced from 1.0 g of aluminum?

4. Barium oxide reacts with sulfuric acid to produce water and barium sulfate.

Balanced equation:

- How many grams of barium sulfate can be formed from 196.0 g of sulfuric acid?
- If 81.00 g water is formed during this reaction, how many grams of barium oxide was used?

5. Sodium chloride reacts in a double replacement reaction with silver nitrate.

Balanced equation:

- 78.00 g of salt should produce how many grams of silver chloride?
- How many grams of silver chloride can be produced if 107.0 g of silver nitrate are present?

6. Given the equation: $\text{B}_2\text{O}_3 + 3 \text{Mg} \rightarrow 3 \text{MgO} + 2 \text{B}$

- How many grams of boron can be obtained from 10.00 kg of B_2O_3 ?
- How many grams of magnesium are required to produce 400.0 kg of boron?

7. Tin (IV) oxide reacts with carbon to form tin and carbon dioxide

Balanced equation:

- How many grams of carbon dioxide are formed when 1.00 kg of tin is produced?
- How many kg of tin (IV) oxide is required to produce 6.00 kg of tin?
- How many kg tin is produced per 1.00 kg of carbon used?

8. Given the equation: $2 \text{KMnO}_4 + \text{H}_2\text{SO}_4 \rightarrow \text{K}_2\text{SO}_4 + \text{Mn}_2\text{O}_7 + \text{H}_2\text{O}$

- How many moles of Mn_2O_7 can be formed from 196.0 g of KMnO_4 ?
- How many grams of Mn_2O_7 can be formed from 390.0 g of KMnO_4 ?
- How many grams of sulfuric acid is needed to produce 27.00 g of water?

9. Given the equation: $\text{HBrO}_3 + \text{Ba}(\text{OH})_2 \rightarrow \text{Ba}(\text{BrO}_3)_2 + \text{H}_2\text{O}$

- How many moles of barium bromate can be prepared from 7.000 moles HBrO_3 ?
- How many moles of barium bromate can be prepared from 7.000 moles barium hydroxide?

10. Given the equation: $16 \text{Na} + \text{S}_8 \rightarrow 8 \text{Na}_2\text{S}$

- How many moles of sodium sulfide are produced when you have 0.2240 moles sodium AND 0.1320 moles of sulfur? (NOTE: it is S_8)