

1. Calculate the volume occupied at STP by 28.4 g of carbon dioxide gas.

[1] _____

2. What is the pressure in a steel cylinder that contains 0.154 mol of chlorine gas at 25.4°C, if the volume of the cylinder is 2.00 dm³?

[2] _____

3. At what temperature in °C does 6.75 g of oxygen gas confined in a volume of 4.61 dm³ exert a pressure of 87.7 kPa?

[3] _____

4. Find the molar mass of a gas if 11.48 g occupy 14.13 dm³ at 104.1 kPa and 45.0°C.

[4] _____

5. What volume of hydrogen gas at STP is produced when 10.48 g of aluminum reacts with excess sulfuric acid?

[5] _____

6. Potassium chlorate decomposes to produce potassium chloride and 3.75 dm^3 of oxygen gas at STP. Find the mass of potassium chlorate that decomposed.

[6] _____

7. The burning of butane, C_4H_{10} produces carbon dioxide and water vapor. How many dm^3 of butane will burn in 27.0 dm^3 of oxygen? Assume all substances are gases measured at the same temperature and pressure.

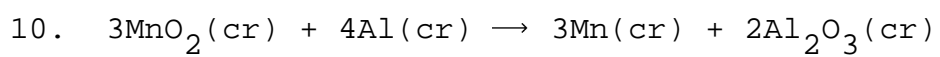
[7] _____

8. $2\text{ZnS}(\text{cr}) + 3\text{O}_2(\text{g}) \rightarrow 2\text{ZnO}(\text{cr}) + 2\text{SO}_2(\text{g})$
Find the mass of zinc oxide produced from the reaction of 7.42 dm^3 of oxygen at 29.1°C and 86.9 kPa .

[8] _____

9. $\text{Ca}_3\text{N}_2(\text{cr}) + 6\text{H}_2\text{O}(\text{l}) \rightarrow 3\text{Ca}(\text{OH})_2(\text{cr}) + 2\text{NH}_3(\text{g})$
Find the volume of NH_3 produced at 34.6°C and 103.9 kPa if 5.55 g of calcium nitride reacts.

[9] _____



What mass of manganese is produced from the reaction of 9.13 g manganese dioxide and 2.09 g of Al?

[10] _____

Key Sheet

[1] 14.5 dm³

[2] 191 kPa

[3] -42.4 °C

[4] 20.6 g/mol

[5] 13.0 dm³

[6] 13.7 g

[7] 4.15 dm³

Key Sheet

[8] 14.1 g

[9] 1.84 dm³

[10] 3.19 g