

What is pressure (in atm) would be exerted by a mixture of 1.4 g of N_2 gas and 4.8 g of O_2 gas in a 200 mL container at $57^\circ C$?

- A) 17.0
- B) 27.0
- C) 34.0
- D) 44.7

What is the volume of 300 mL sample of a gas at STP occupied when the pressure is doubled at constant temperature?

- A) 150 mL
- B) 250 mL
- C) 350 mL
- D) 600 mL

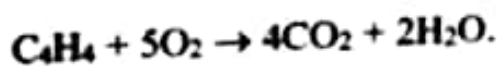
Calculate the number of moles of a gas present in a 26.5 L container at $25^\circ C$ and 5016 mmHg.

- A) 7.150 mol
- B) 9.130 mol
- C) 17.00 mol
- D) 36.48 mol

Caffeine's molecular formula is $C_8H_{10}N_4O_2$. The molar mass of caffeine is 194 g/mol. What is the percentage of carbon in caffeine?

- A) 8.20 %
- B) 16.5 %
- C) 28.9 %
- D) 49.5 %

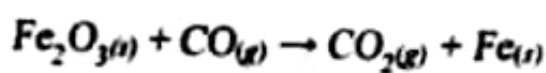
For the balanced chemical equation below:



What is the mass of water that could be produced? If 0.3618 mol of C_4H_4 react with 1.818 mol of O_2 .

- A) 11.02 g
- B) 13.09 g
- C) 19.64 g
- D) 65.50 g

12- The numbers required to balance the equation (respectively) are:



- A) 1,1,1,1
- B) 1,1,1,2
- C) 1,3,3,2
- D) 2,1,1,4

3- How many phosphorus atoms are in 2.57 g of P?

- A) 0.0829 atoms
- B) 2.5700 atoms
- C) 7.26×10^{24} atoms
- D) 4.99×10^{22} atoms

What is the density of N_2 gas at 0°C and 2 atm?

- A) 0.50 g/L
- B) 1.05 g/L
- C) 1.63 g/L
- D) 2.50 g/L

A compound with a composition of 87.5 % N and 12.5 % H was recently discovered. What is the empirical formula for this compound?

- A) NH_2
- B) N_2H_3
- C) NH
- D) N_2H

A solution is made by dissolving some salt in beaker of water. The salt is referred to as

- A) solvent
- B) solute
- C) solution
- D) filtrate

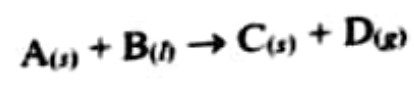
If the water pressure is 99.136 atm. What is this pressure in KPa?

- A) 0.9650×10^4 KPa
- B) 1.0045×10^4 KPa
- C) 1.1329×10^4 KPa
- D) 6.0542×10^4 KPa

What is the mass of Na_2SO_4 is required to prepare 400 mL of 1.50 M Na_2SO_4 solution?

- A) 2130 g
- B) 56.80 g
- C) 71.40 g
- D) 85.20 g

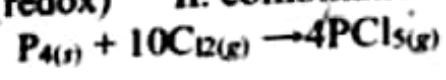
The total pressure P_1 for the gaseous products collected over water of the following reaction equals:



- A) $P_C + P_D + P_{\text{H}_2\text{O}}$
- B) $P_D + P_{\text{H}_2\text{O}}$
- C) $P_B + P_D + P_{\text{H}_2\text{O}}$
- D) $P_A + P_D + P_{\text{H}_2\text{O}}$

Classify the following reaction by giving all of these reaction type(s) that apply.

- I. oxidation/reduction (redox)
- II. combination
- III. Decomposition



- A) only I
- B) only II
- C) only III
- D) I and II

A sample of gas occupies 3.5 L at 300 K. What volume will it occupy at 200 K?

- A) 1.5 L
- B) 2.0 L
- C) 2.3 L
- D) 5.0 L