

HW01 - Chemistry Fundamentals

1 1 point

The measurement 4.7×10^{-3} m could also be written as...

- 4.7 mm
- 4.7 km
- 4.7 Mm
- 4.7 nm

2 1 point

The mole concept is important in chemistry because...

- it allows us to distinguish between elements and compounds.
- it provides a universally accepted standard for mass.
- it establishes a standard for reaction stoichiometry.
- it allows us to count atoms and molecules by weighing macroscopic amounts of material.

3 1 point

How many atoms of hydrogen are contained in 2 moles of methane (CH_4)?

- 2.41×10^{24} atoms
- 4 atoms
- 4.82×10^{24} atoms
- 1.20×10^{24} atoms

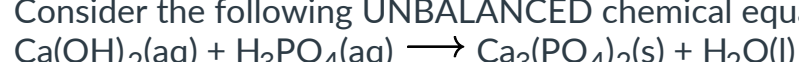
4 1 point

Which has the greatest number of hydrogen atoms?

- 20g of hydrogen gas
- 100g of water
- 100g of a substance that is 2% H by mass
- 10^{20} hydrogen atoms

5 1 point

Consider the following UNBALANCED chemical equation:

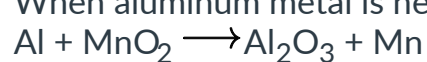


What is the coefficient for H_2O when the reaction is balanced using the smallest possible integers?

- 3
- 6
- 4
- 2
- 1

6 1 point

When aluminum metal is heated with manganese oxide, the following reaction occurs:

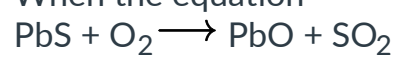


Balance this equation. What is the sum of the coefficients of ALL species in the balanced chemical equation?

- 12
- 10
- 7
- 15

7 1 point

When the equation



is balanced, the coefficients are _____, respectively.

- 2, 3, 2, 2
- 1, 2, 3, 3
- 1, 2, 1, 1
- 2, 2, 1, 2

8 1 point

Consider the UNBALANCED reaction below.



Balance this equation using the smallest possible integers. What is the sum of the coefficients in the balanced equation?

- 8
- 12
- 14
- 6
- 10

9 1 point

Which of the following has the greatest number of ATOMS?

- These all have the same number of atoms.
- 3.05 moles of CH_4
- 3.05 moles of argon
- 3.05 moles of water

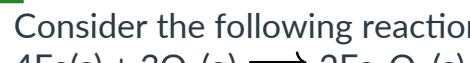
10 1 point

If 100.0 grams of copper (Cu) completely reacts with 25.0 grams of oxygen, how much copper (II) oxide (CuO) will form from 140.0 grams of copper and excess oxygen? (Note: CuO is the only product of this reaction.)

- 175.0 g
- 35.00 g
- 160.0 g
- 210.0 g

11 1 point

Consider the following reaction:



If 12.50 g of iron (III) oxide (rust) are produced from 8.74 g of iron, how much oxygen gas is needed for this reaction?

- 3.76 g
- 21.24 g
- 8.74 g
- 7.55 g

12 1 point

Upon heating, potassium chlorate produces potassium chloride and oxygen.

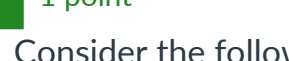


What mass of oxygen would be produced upon thermal decomposition of 25 g of potassium chlorate (KClO_3)? The molecular weight (MW) of potassium chlorate is 122.5 g/mol.

- 3.3 g
- 9.8 g
- 6.5 g
- 4.9 g

13 1 point

Consider the following reaction:



How much oxygen is required to convert 35 g of CO into CO_2 ?

- 10 g
- 35 g
- 40 g
- 20 g

14 1 point

Consider the following reaction:



How many MOLECULES of NH_3 can be produced from the reaction of 74.2 g of N_2 and 14.0 moles of H_2 ?

- 4.45×10^{24} molecules
- 3.19×10^{24} molecules
- 5.62×10^{24} molecules
- 1.26×10^{25} molecules

15 1 point

Consider the following reaction:



39.7 grams of C_6H_6 are allowed to react with 105.7 g of O_2 . How much CO_2 will be produced by this reaction?

- 134.4 g
- 145.3 g
- 22.4 g
- 116.3 g