HW01 - Chemistry Fundamentals

⚠ This is a preview of the draft version of the quiz

Started: Aug 8 at 4:45pm

Quiz Instructions

Homework 01 - Chemistry Fundamentals

Question 1 **1 pts**

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

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

Question 2 **1 pts**

The mole concept is important in chemistry because...

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

Question 3 **1 pts**

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

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

Question 4 **1 pts**

Which has the greatest number of hydrogen atoms?

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

Question 5 **1 pts**

Consider the following UNBALANCED chemical equation:

$Ca(OH)_2(aq) + H_3PO_4(aq) \longrightarrow Ca_3(PO_4)_2(s) + H_2O(l)$

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

- 6
- 3
- 2
- 4
- 1

Question 6 **1 pts**

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

$Al + MnO_2 \longrightarrow Al_2O_3 + Mn$

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

- 10
- 7
- 15
- 12

Question 7 **1 pts**

When the equation

$PbS + O_2 \longrightarrow PbO + SO_2$

is balanced, the coefficients are _____, respectively.

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

Question 8 **1 pts**

Consider the UNBALANCED reaction below.

$Al_2(SO_4)_3 + NaOH \longrightarrow Al(OH)_3 + Na_2SO_4$

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

- 10
- 12
- 14
- 8
- 6

Question 9 **1 pts**

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 water
- 3.05 moles of argon

Question 10 **1 pts**

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
- 210.0 g
- 35.00 g
- 160.0 g

Question 11 **1 pts**

Consider the following reaction:

$4Fe(s) + 3O_2(g) \longrightarrow 2Fe_2O_3(s)$

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
- 7.55 g
- 8.74 g

Question 12 **1 pts**

Upon heating, potassium chlorate produces potassium chloride and oxygen.

$2KClO_3 \longrightarrow 2KCl + 3O_2$

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.

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

Question 13 **1 pts**

Consider the following reaction:

$CO + O_2 \longrightarrow CO_2$

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

- 10 g
- 20 g

- 35 g
- 40 g

Question 14 **1 pts**

Consider the following reaction:

$N_2 + H_2 \longrightarrow NH_3$

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

Question 15 **1 pts**

Consider the following reaction:

$C_6H_6 + O_2 \longrightarrow CO_2 + H_2O$

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

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