Name: _____ **Date:** _____

Avogadro's Recipe: The Stoichiometry Lab Quiz for 7th Grade

How do chemists count atoms by weighing them? Practice unit conversions and mole-to-mass ratios for middle school reaction analysis.

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1. A group of scientists is synthesizing aluminum oxide (Al2O3). If the balanced equation is 4Al + 3O2 ’ 2Al2O3, what is the stoichiometric ratio of Aluminum to Oxygen gas?

A. 4:3
B. 2:3
C. 3:4
D. 1:1

2. The molar mass of Lithium (Li) is approximately 7 g/mol. If a battery technician has 21 grams of Lithium, they have exactly ___ moles.

A. 1 mole
B. 2 moles
C. 3 moles
D. 14 moles

3. True or False: One mole of lead (Pb) atoms contains the same number of particles as one mole of helium (He) atoms, even though lead is much heavier.

A. True
B. False

4. In the decomposition of baking soda (2NaHCO3 ’Na2CO3 + H2O + CO2), how many moles of Carbon Dioxide are produced from 2 moles of baking soda?

A. 0.5 moles
B. 1 mole
C. 2 moles
D. 4 moles

5. To find the molar mass of Calcium Chloride (CaCl2), you must add the mass of one Calcium atom to the mass of ___ Chlorine atom(s).

A. One
B. Two
C. Three
D. Four

6. True or False: Stoichiometry allows engineers to predict exactly how much waste product will be generated in a chemical factory before the reaction starts.

A. True

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B. False

7. If the molar mass of Oxygen gas (O_2) is 32 g/mol, what is the mass of 0.25 moles of O_2?

A. 128 grams
B. 16 grams
C. 8 grams
D. 4 grams

8. If a reaction requires a 1:2 ratio of Reactant A to Reactant B, and you have 5 moles of A, you need ___ moles of B to react completely.

A. 2.5
B. 5
C. 10
D. 20

9. Silver nitrate reacts with Copper to produce Silver. If the balanced equation shows 2 moles of $AgNO_3$ are needed for every 1 mole of Cu, what is this called?

A. Atomic Number
B. The Mole Ratio
C. Isotopic Mass
D. The Gas Constant

10. True or False: In a balanced chemical equation, the total mass of the reactants must equal the total mass of the products.

A. True
B. False