

Chemical Reactions and Quantities

Answer the questions below

1. Identify the chemical change in the following:

- burning paper
- cutting a piece of thread
- melting ice in a glass
- boiling water in a pan

2. What is the coefficient needed for Al when the equation $\text{Al} + \text{Cl}_2 = \text{AlCl}_3$ is balanced?

- 2
- 1
- 3
- 6

3. Classify the type of reaction for the reaction $\text{Fe}_2\text{S}_3 = 2\text{Fe} + 3\text{S}$

- double replacement
- decomposition
- combination
- single replacement

4. How many atoms are in one mole of aluminum atoms?

- 1
- 6.02×10^{-23}
- 6.02
- 6.02×10^{23}

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5. What is the molar mass of the antacid $\text{Al}(\text{OH})_3$?

- 61.0 g/mole
- 44.0 g/mole
- 78.0 g/mole
- 22.0 g/mole

6. How many grams are in 1.5 moles of P?

- 23 g
- 46.5 g
- 47 g
- 22.5 g

7. How many moles are in 18.2 g of CO_2 ?

- 41.4 moles
- 2.42 moles
- 0.414 moles
- 801 moles

8. What is the mass in grams of 0.250 moles of CH_4 ?

- 4.00 g
- 64.0 g
- 4.0 g
- 4 g

9. What are the possible mole factors for Fe and O_2 in the equation $4\text{Fe} + 3\text{O}_2 = 2\text{Fe}_2\text{O}_3$?

- 1 mole Fe/1 mole O_2 and 1 mole O_2 /1 mole Fe
- 4 mole Fe/2 mole Fe_2O_3
- 4 mole Fe/1 mole O_2 and 1 mole O_2 /4 mole Fe
- 4 mole Fe/3 mole O_2 and 3 mole O_2 /4 mole Fe

10. Consider the reaction $\text{N}_2 + 3\text{H}_2 = 2\text{NH}_3$ How many moles of H_2 are needed to completely react 56 g of N_2 ?

- 1.0 moles of H_2
- 3.0 moles of H_2
- 2.0 moles of H_2
- 6.0 moles of H_2

11. Consider the reaction $\text{N}_2 + 3\text{H}_2 = 2\text{NH}_3$ How many grams of NH_3 are produced when 6.0 g of H_2 completely react?

- 9.0 g of NH_3
- 3.0 g of NH_3
- 4.0 g of NH_3
- 34 g of NH_3

12. Complete and balance the following combustion reaction $\text{C}_4\text{H}_8 + \text{O}_2 =$

- $\text{C}_4\text{H}_8 + \text{O}_2 = 4\text{CO}_2 + 4\text{H}_2\text{O}$
- $\text{C}_4\text{H}_8 + \text{O}_2 = 4\text{CO}_2 + \text{H}_2\text{O}$
- $\text{C}_4\text{H}_8 + 6\text{O}_2 = 4\text{CO}_2 + 4\text{H}_2\text{O}$
- $\text{C}_4\text{H}_8 + \text{O}_2 = \text{CO}_2$

13. How many grams are in 0.0150 mole of caffeine $\text{C}_8\text{H}_{10}\text{N}_4\text{O}_2$

- 2.91 g
- 0.825 g
- 194 g
- 129g

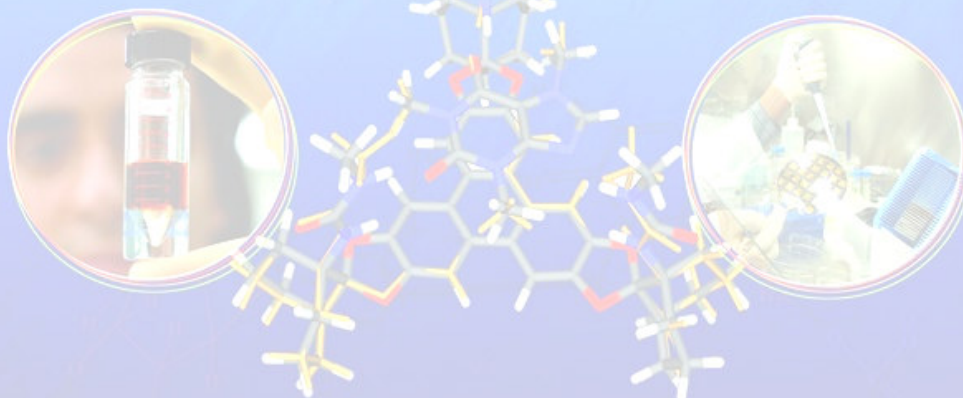
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14. What type of reaction is $2\text{Fe} + 3\text{H}_2\text{SO}_4 = \text{Fe}_2(\text{SO}_4)_3 + 3\text{H}_2$?

- double replacement
- decomposition
- combination
- single replacement

15. Which of the following is an oxidation?

- $\text{Fe}^{3+} + \text{e}^- = \text{Fe}^{2+}$
- $\text{Fe}^{3+} + 3\text{e}^- = \text{Fe}$
- $\text{Fe} = \text{Fe}^{2+} + 2\text{e}^-$
- $\text{Cl} + \text{e}^- = \text{Cl}^-$



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