Chemistry Worksheet: Moles

Short Answer

1. One mole of silicon (Si) has a mass of 28.086 g, and one mole of carbon has a mass of 12.011 g. What is the mass of one mole of silicon carbide (SiC)?

2. The units of molar mass are

3. Calculate the number of moles in 39g silicon.

4. What is a correct method for calculating the mass of 1.9×10^{23} potassium atoms?

5. The molar mass of silver is 107.9 g/mol. What is the mass of a single silver atom?

6. A nail is coated with a 0.042 cm thick layer of zinc. The surface area of the nail is 9.17 cm^2. The density of zinc is 7.13 g/cm^3. How many zinc atoms are used in the coating?

7. What is the correct method to determine the number of oxygen atoms in 8.12g of carbon dioxide?

8. If 1.00g of an unknown molecular compound contains 4.55×10^{21} molecules, what is its molar mass?

9. What is the SI base unit used to measure the amount of a substance?

10. Calculate the number of molecules in 4.0 mol H_2O.

11. How many moles of Ag contain 4.49×10^{23} atoms Ag?

12. Calculate the number of atoms in 13.2 mol copper.

13. Copper (Cu) is a transition element used in the making of coins. Calculate the mass in grams of 0.0420 moles of copper.

14. Determine the mass in grams of 0.0489 mol cobalt.

15. How many moles of potassium contain 3.70×10^{23} electrons potassium?

16. How many moles of calcium are in 425 g calcium (Ca)?

17. Copper is one of a group of metals called the coinage metals. How many atoms of copper (Cu) are in a pure copper coin weighing 12.0 g?

18. A balloon contains 4.50×10^{22} atoms of helium (He) gas. Calculate the mass of helium in grams.

19. What is the molar mass of $Ca(OH)_2$?

20. What is the mass of 2.25 moles of sulfuric acid (H_2SO_4)?

21. How many grams of potassium permanganate are in 2.20 moles?

22. Determine the number of moles present in 32.5 g aluminum chloride.

23. What is the mass in grams of 1.02×10^{24} atoms manganese (Mn)?

24. How many moles are present in 21.2 g hydrochloric acid?

25. A mass of 2.50 g of hydrated copper(II) sulfate is placed in a crucible and heated. On heating, 1.59 g of white anhydrous copper(II) sulfate is left behind. Determine the ratio of water to copper(II) sulfate.