

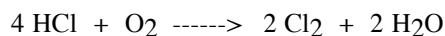
<p>11. Working with Moles II</p> <p>How many moles are present in</p> <p>35 g of CaO</p> <p>17 g of CaCl₂</p>	<p>16. Percentage Composition III</p> <p>Find the percentage water in Na₂SO₄ · 10 H₂O.</p>
<p>12. Understanding Chemical Symbols</p> <p>What is the total number of atoms in a molecule of FeCO₃?</p> <p>How many hydrogen atoms are in one molecule of (NH₄)₃PO₄?</p>	<p>17. Empirical Formula</p> <p>A compound is analyzed and found to be 11.2% oxygen and 88.8 % copper by weight. Based on this information, what is the empirical formula for this compound?</p>
<p>13. Using Nuclear Symbols</p> <p>Give the number of protons and neutrons in..</p> ${}_{90}^{232}\text{Th}$ <p>Write the symbol (like the one shown above) for an atom with 13 protons and 15 neutrons.</p>	<p>18. Molecular Formulas</p> <p>A compound is analyzed and found to be 59 % Na and 31% O. The molecular weight of the compound is 78. Based on this information what is the formula for this compound?</p>
<p>14. Percentage Composition I</p> <p>Find the percentage (by weight) of each element present in Na₂CO₃.</p>	<p>19. Understanding Simple Names</p> <p>Give the formulas for:</p> <p>Carbon Monoxide</p> <p>Carbon Tetrabromide</p>
<p>15. Percentage Composition II</p> <p>Find the percentage (by weight) of each element present in Ca(OH)₂.</p>	<p>20. Naming With Radicals</p> <p>Give the names of the following:</p> <p>AgNO₃</p> <p>AlPO₄</p>

21. Chemical Formulas I

Write the formulas for:

silver oxide

aluminum bromide

26. Understanding Chemical Equations

How many atoms of chlorine are present on the reactant side of the above reaction?

How many atoms of oxygen are present on the product side of the above reaction?

22. Chemical Formulas II

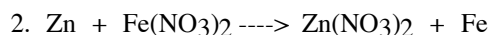
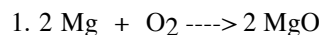
Give the formulas for..

potassium sulfate

aluminum nitrate

27. Types of Chemical Reactions

Match each reaction with the correct type:



- a. synthesis b. redox c. decomposition
d. single replacement e. double replacement f. combustion

23. Chemical Formulas III

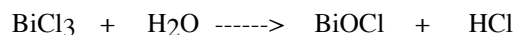
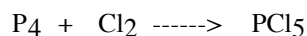
Give the formulas for....

stannous fluoride

ferric hydroxide

28. Balancing Chemical Equations I

Balance each of the following reactions...

**24. Chemical Formulas IV**

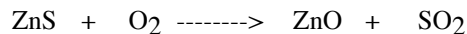
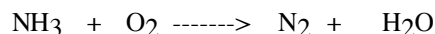
Write the formulas for....

Mercury I Chloride

Chromium III Oxide

29. Balancing Chemical Equations II

Balance each of the following reactions...

**25. Chemical Formulas V**

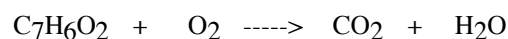
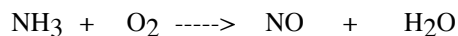
Write the formulas for...

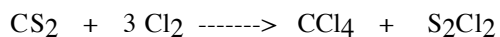
Magnesium Chloride Dihydrate

Ferric Nitrate Tetrahydrate

30. Balancing Chemical Equations III

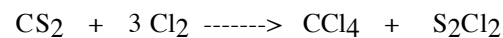
Balance each of the following reactions...



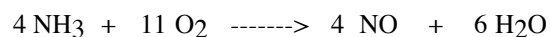
31. Chemical Stoichiometry I

How many moles of Cl_2 would be needed to react completely with 5 moles of CS_2 ?

If 10 moles of S_2Cl_2 were produced in the above reaction, then how many moles of CCl_4 must have also been produced?

32. Chemical Stoichiometry II

How many grams of Cl_2 would be needed to react completely with 4 moles of CS_2 ?

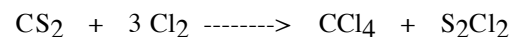
33. Chemical Stoichiometry III

How many grams of oxygen would be needed to react with 50 g of NH_3 ?

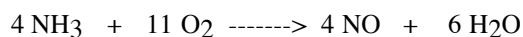
34. Molar Volume

How many moles are present in 60 liters of F_2 at STP?

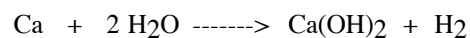
Convert 4.5 moles of CH_4 into a number of liters at STP.

35. Chemical Stoichiometry IV

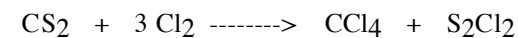
How many liters of Cl_2 (at STP) would be needed to react completely with 100 g of CS_2 ?

36. Chemical Stoichiometry V

How many liters of O_2 would be needed to react completely with 7 liters of NH_3 ? (All measured at STP)

37. Limiting Reactant Problems I

20 g of Ca is mixed with 20 g of H_2O . The reaction proceeds until one of the chemicals is used up. How many grams of Ca(OH)_2 are produced?

38. Limiting Reactant Problems II

60 g of CS_2 is mixed with 50 g of Cl_2 . The reaction proceeds until one of the chemical is used up. How many grams of CCl_4 is produced?

39. The Kinetic Molecular Theory

T or F

1. () Gases are mostly empty space.
2. () In general, at higher temperatures, the molecules of a gas move faster.
3. () Molecules of a gas are in constant motion.

40. Boyle's Law

30 ml of a gas is trapped in a syringe type container at a pressure of 650 torr. If the pressure is increased to 735 torr what would the volume be if the temperature remains constant?

41. Charles' Law

80 mL of a gas is trapped in a syringe type container at a temperature of 60°C. If the temperature is raised to 300°C, (at constant pressure) what would the volume be?

46. Graham's Law

What is the ratio of the speed of CH₄ to that of F₂, at the same temperature.

42. The Combined Gas Law

Suppose that you have 40 mL of a gas in a syringe type container at 0°C and 700 mmHg. If the temperature were increased to 400°C and the pressure to 900 torrs, what would the volume be?

47. Electron Configurations

Give the electron configuration of

Al

Pb

43. The Ideal Gas Law

200 mL of an unknown gas is trapped within a syringe type container at 1.2 atm of pressure and at 50°C. Calculate the number of moles of gas present.

48. Electron Dot Symbol

Give the electron dot symbol for

Al

Pb

44. Density of Gases

Calculate the density of O₂ gas at STP.

49. Navigating The Periodic Table

Give the symbols for three alkaline earth metals.

Give the symbols for three halogens.

Give the symbols for three noble gases.

45. Dalton's Law

795 mL of H₂ gas and 601 mL of He gas, both at 35°C and 94.2 kPa, are injected into a 515 mL flask. Find the total pressure in the flask, assuming the temperature remains constant.

50. Valence Electrons

How many valence electrons are in atoms of.....

Al

S

K

Br

51. Molarity of Solutions I

How many grams of HNO_3 would it take to prepare 400 mL of a 0.25 M solution?

56. Heat of Fusion and Vaporization

How much water could be vaporized by 6000 calories of heat energy?

How much heat would be needed to melt 50 grams of ice at 0°C ?

52. Molarity of Solutions II

Suppose that you have 300 mL of a 0.25 M solution of HNO_3 . What would the concentration of this solution be if 150 mL of water were added to it?

57. Molality

Calculate the molality of a solution containing 6.00 g of NaOH dissolved in 325 g of water.

53. Molarity of Solutions III

How much concentrated HNO_3 would be needed to make 800 mL of a 0.4 M solution? (Concentrated HNO_3 is 15 M)

58. Freezing Point

Calculate the freezing point of the solution in #57.

54. Molarity Of Solutions IV

Suppose that 200 mL of 0.35 M HCl is mixed with 450 mL of 0.6 M HCl . What is the concentration of the final solution?

59. Boiling Point

Calculate the boiling point of the solution in #57.

55. The Joule

How many joules would be needed to raise the temperature of 400 g of H_2O from 40°C to 88°C ?

60. pH & pOH

What is the pH of a solution that has an $[\text{H}^+] = 1.0 \times 10^{-9}$?

What is the pH of a solution that has an $[\text{OH}^-] = 1.0 \times 10^{-5}$?

61. Metric System**Convert**

0.055 m to cm _____ 5 km/hr to m/s _____

7.5 L to mL _____ 60 g to mg _____

650 m to km _____ 66.3 L to cm³ _____**62. Significant Figures I**

How many significant figures are there in each of the following measurements:

0.123 m _____ 0.000 73 mm _____

40 506 mm _____ 507 in _____

98 000 m _____ 6.70 x 10⁸ m _____**63. Significant Figures II**

Perform the following operations and express your answer to the proper number of significant figures:

12.52 m + 349.0 m + 8.24 m _____

9.44 m - 2.1 m _____

7.55 m x 0.34 m _____

8432 m ÷ 12.5 m _____

64. DensityWhat is the density of an an object having a mass of 32 g and a volume of 75 cm³?**65. Physical vs Chemical Changes**

Identify the following as either a chemical (C) or physical (P) change:

melting _____ cutting _____

rusting _____ burning _____

freezing _____ evaporating _____

66. Definitions

Define the following:

Accuracy

Precision

% Error

Chemistry

67. Periodic Trends

List the periodic trends [group and period] of the following:

atomic radii

ionization energy

electronegativity

68. Word Equations

Write the balanced chemical equation for the following word equation:

Copper + Nitric Acid ---> Copper II Nitrate + Nitrogen IV Oxide + Water

69. Definitions

Define the following:

Acid

Base

70. Definitions

Define the following:

Normality

Equivalents