

Chemical Formula Writing Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the chemical symbol for Sodium?

undefined. A) S

undefined. B) Na ✓

undefined. C) N

undefined. D) So

The chemical symbol for Sodium is Na.

Which of the following are polyatomic ions?

undefined. A) NH_4^+ ✓

undefined. B) Cl⁻

undefined. C) SO_4^{2-} ✓

undefined. D) O^{2-}

Polyatomic ions are ions made up of two or more atoms. NH_4^+ and SO_4^{2-} are examples.

Explain the difference between a cation and an an ion.

A cation is a positively charged ion, while an an ion is a negatively charged ion.

List the chemical symbols for the following elements: Hydrogen, Oxygen, Calcium.

1. Hydrogen

H

2. Oxygen

O

3. Calcium

Ca

The chemical symbols are H for Hydrogen, O for Oxygen, and Ca for Calcium.

Which of the following is the correct formula for water?

undefined. **A) H₂O** ✓

undefined. B) HO₂

undefined. C) H₂O₂

undefined. D) OH

The correct formula for water is H₂O.

Part 2: Comprehension and Application

What is the charge on a sulfate ion (SO₄)?

undefined. A) 1⁻

undefined. **B) 2⁻** ✓

undefined. C) 1⁺

undefined. D) 2⁺

The charge on a sulfate ion is 2⁻.

Which of the following correctly describe ionic compounds?

undefined. **A) They are formed by the transfer of electrons.** ✓

undefined. **B) They are usually formed between metals and non-metals.** ✓

undefined. C) They are formed by sharing electrons.

undefined. **D) They have high melting and boiling points.** ✓

Ionic compounds are formed by the transfer of electrons, usually between metals and non-metals, and they have high melting and boiling points.

Describe how to determine the formula of an ionic compound from its constituent ions.

To determine the formula of an ionic compound, balance the total positive and negative charges from the constituent ions.

What is the correct formula for aluminum oxide, given that aluminum forms a 3^+ ion and oxide forms a 2^- ion?

undefined. A) AlO

undefined. **B) Al_2O_3 ✓**

undefined. C) Al_3O_2

undefined. D) AlO_2

The correct formula for aluminum oxide is Al_2O_3 .

Identify the correct formulas for compounds formed between the following ions: Ca^{2+} and Cl^- , Na^+ and SO_4^{2-} .

undefined. A) CaCl

undefined. **B) $CaCl_2$ ✓**

undefined. C) $NaSO_4$

undefined. **D) Na_2SO_4 ✓**

The correct formulas are $CaCl_2$ and Na_2SO_4 .

Write the chemical formula for a compound formed between magnesium ions (Mg^{2+}) and nitrate ions (NO_3^-).

The chemical formula for the compound is $Mg(NO_3)_2$.

Part 3: Analysis, Evaluation, and Creation

Which of the following compounds is covalent?

undefined. A) NaCl

undefined. **B) CO_2 ✓**

undefined. C) MgO

undefined. D) KBr

The covalent compound among the options is CO_2 .

Analyze the following statements and select those that are true about covalent compounds:

undefined. A) They conduct electricity when dissolved in water.

undefined. B) They have low melting and boiling points. ✓

undefined. C) They are formed by sharing electrons. ✓

undefined. D) They are usually formed between non-metals. ✓

True statements about covalent compounds include that they are formed by sharing electrons and are usually formed between non-metals.

Explain why ionic compounds tend to have higher melting points than covalent compounds.

Ionic compounds have higher melting points due to the strong electrostatic forces between oppositely charged ions, compared to the weaker forces in covalent compounds.

Which of the following best explains why water (H_2O) is a polar molecule?

undefined. A) It has a linear shape.

undefined. B) It has a bent shape and an unequal distribution of electrons. ✓

undefined. C) It is made of hydrogen and oxygen.

undefined. D) It is a covalent compound.

Water is a polar molecule because it has a bent shape and an unequal distribution of electrons.

Evaluate the following scenarios and identify which describe a chemical reaction:

undefined. A) Ice melting into water.

undefined. B) Iron rustling. ✓

undefined. C) Salt dissolving in water.

undefined. D) Baking soda reacting with vinegar. ✓

The scenarios that describe a chemical reaction are iron rustling and baking soda reacting with vinegar.

Design a simple experiment to demonstrate the formation of an ionic compound from its elements. Describe the materials and procedure you would use.

A simple experiment could involve combining sodium and chlorine to form sodium chloride, using appropriate safety measures.