

Ionic Names And Formulas Worksheet Answer Key PDF

Ionic Names And Formulas Worksheet Answer Key PDF

Disclaimer: The ionic names and formulas worksheet answer key pdf was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at max@studyblaze.io.

Part 1: Building a Foundation

What is the charge of a cation?

undefined. Negative

undefined. Positive ✓

undefined. Neutral

undefined. Variable

A cation has a positive charge.

Which of the following are characteristics of ionic compounds? (Select all that apply)

undefined. High melting points ✓

undefined. Conduct electricity when dissolved in water ✓

undefined. Form by sharing electrons

undefined. Usually soluble in water ✓

Ionic compounds typically have high melting points, conduct electricity when dissolved in water, and are usually soluble in water.

Define a polyatomic ion and provide two examples.

A polyatomic ion is a charged ion composed of two or more atoms. Examples include sulfate (SO_4^{2-}) and ammonium (NH_4^+).

List the steps to write the chemical formula for an ionic compound.

1. Step 1

Identify the cation and anions.

2. Step 2

Determine the charges of each ion.

3. Step 3

Balance the charges to find the correct ratio.

The steps include determining the charges of the ions, balancing the charges, and writing the formula with the correct subscripts.

Part 2: Comprehension and Application

Which suffix is typically used for the non-metal in a binary ionic compound?

undefined. -ate

undefined. -ite

undefined. -ide ✓

undefined. -ous

The suffix -ide is typically used for the non-metal in a binary ionic compound.

When naming an ionic compound with a transition metal, what information is conveyed by the Roman numeral? (Select all that apply)

undefined. The number of atoms

undefined. The charge of the metal ion ✓

undefined. The number of electrons lost

undefined. The oxidation state of the metal ✓

The Roman numeral indicates the charge of the metal ion and its oxidation state.

Explain why ionic compounds are typically neutral, and describe how this neutrality is achieved in their chemical formulas.

Ionic compounds are neutral because the total positive charge from cations equals the total negative charge from anions, resulting in a balanced formula.

What is the correct formula for a compound formed between magnesium ions (Mg^{2+}) and chloride ions (Cl^-)?

undefined. $MgCl$

undefined. MgCl_2 ✓

undefined. Mg_2Cl

undefined. Mg_2Cl_2

The correct formula is MgCl_2 , as two chloride ions are needed to balance the charge of one magnesium ion.

Which of the following compounds contain polyatomic ions? (Select all that apply)

undefined. NaCl

undefined. CaCO_3 ✓

undefined. NH_4NO_3 ✓

undefined. KBr

Compounds like CaCO_3 and NH_4NO_3 contain polyatomic ions.

Write the name for the compound with the formula Fe_2O_3 , and explain the process you used to determine the name.

The name for Fe_2O_3 is iron(III) oxide, determined by identifying the oxidation state of iron in the compound.

Part 3: Analysis, Evaluation, and Creation

Which of the following correctly describes the relationship between the formula and the name of the compound Na_2SO_4 ?

undefined. Sodium sulfate; sodium ions balance the sulfate ion charge. ✓

undefined. Sodium sulfide; sodium ions balance the sulfide ion charge.

undefined. Sodium sulfate; sulfate ions balance the sodium ion charge.

undefined. Sodium sulfite; sodium ions balance the sulfite ion charge.

The correct description is that Na_2SO_4 is sodium sulfate, where sodium ions balance the sulfate ion charge.

Analyze the following formulas and identify which are correctly balanced ionic compounds. (Select all that apply)

undefined. Al_2O_3 ✓

undefined. CaCl

undefined. K_2O ✓

undefined. $Mg(NO_3)_2$ ✓

The correctly balanced ionic compounds are Al_2O_3 , K_2O , and $Mg(NO_3)_2$.

Compare and contrast the naming conventions for binary ionic compounds and those containing polyatomic ions. Provide examples to support your analysis.

Binary ionic compounds are named using the cation followed by the anions with the -ide suffix, while polyatomic ions retain their names. For example, NaCl is sodium chloride, while Na_2SO_4 is sodium sulfate.

Which of the following statements best evaluates the stability of ionic compounds in water?

undefined. Ionic compounds are unstable in water and decompose.

undefined. **Ionic compounds dissolve in water, increasing conductivity.** ✓

undefined. Ionic compounds remain unchanged in water.

undefined. Ionic compounds react with water to form covalent compounds.

Ionic compounds dissolve in water, increasing conductivity.

Create a balanced formula for a compound formed between aluminum ions (Al^{3+}) and phosphate ions (PO_4^{3-}). Which of the following options is correct? (Select all that apply)

undefined. $AlPO_4$ ✓

undefined. $Al_3(PO_4)_2$

undefined. $Al_2(PO_4)_3$ ✓

undefined. $AlPO_{43}$

The correct balanced formulas are $AlPO_4$ and $Al_2(PO_4)_3$.

Design a real-world scenario where understanding ionic compounds is crucial. Explain the scenario and how knowledge of ionic compounds would be applied to solve a problem.

Understanding ionic compounds is crucial in fields like medicine, where ionic compounds are used in medications and treatments. For example, knowing how sodium chloride affects fluid balance in the body can help in medical treatments.