

Naming Covalent Bonds Worksheet Answer Key PDF

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Part 1: Foundational Knowledge

Which of the following best describes a covalent bond?

- undefined. A) Transfer of electrons between atoms
- undefined. B) Sharing of electron pairs between atoms ✓**
- undefined. C) Attraction between oppositely charged ions
- undefined. D) Formation of a lattice structure

A covalent bond is best described as the sharing of electron pairs between atoms.

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Which of the following are types of covalent bonds? (Select all that apply)

undefined. A) Single bond ✓

undefined. B) Double bond ✓

undefined. C) Ionic bond

undefined. D) Triple bond ✓

The types of covalent bonds include single, double, and triple bonds.

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The types of covalent bonds include single, double, and triple bonds.

Explain the difference between a single covalent bond and a double covalent bond.

A single covalent bond involves one pair of shared electrons, while a double covalent bond involves two pairs of shared electrons.

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List the prefixes used for naming covalent compounds for the numbers 1 to 4.

1. 1

mono-

2. 2

di-

3. 3

tri-

4. 4

tetra-

The prefixes are: 1 - mono-, 2 - di-, 3 - tri-, 4 - tetra-.

What is the suffix used for the second element in a binary covalent compound?

undefined. A) -ate

undefined. B) -ide ✓

undefined. C) -ite

undefined. D) -ous

The suffix used for the second element in a binary covalent compound is -ide.

What is the suffix used for the second element in a binary covalent compound?

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Part 2: Understanding

Which prefix is typically omitted when naming the first element in a covalent compound?

undefined. **A) Mono-** ✓

undefined. B) Di-

undefined. C) Tri-

undefined. D) Tetra-

The prefix typically omitted when naming the first element is mono-.

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The prefix 'mono-' is typically omitted when naming the first element in a covalent compound.

Which of the following compounds are correctly named according to covalent naming rules? (Select all that apply)

undefined. **A) CO as Carbon monoxide** ✓

undefined. **B) N₂O as Dinitrogen oxide** ✓

undefined. C) SF_6 as Sulfur hexafluoride ✓

undefined. D) H_2O as Dihydrogen oxide ✓

The correctly named compounds are CO as Carbon monoxide, N_2O as Dinitrogen oxide, SF_6 as Sulfur hexafluoride, and H_2O as Dihydrogen oxide.

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Describe the general rule for naming the second element in a binary covalent compound.

The second element in a binary covalent compound is named using the root of the element's name followed by the suffix **-ide**, along with a prefix indicating the number of atoms.

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The general rule is to use the prefix corresponding to the number of atoms and the suffix **-ide** for the second element.

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Part 3: Application and Analysis

What is the correct name for the compound PCl_3 ?

undefined. A) Phosphorus chloride

undefined. B) Phosphorus trichloride ✓

undefined. C) Phosphor chloride

undefined. D) Phosphor trichloride

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The correct name for the compound PCl_3 is Phosphorus trichloride.

Identify the correct formulas for the following names: (Select all that apply)

undefined. A) Dinitrogen tetroxide: N_2O_4 ✓

undefined. B) Carbon tetrachloride: CCl_4 ✓

undefined. C) Sulfur dioxide: SO_3

undefined. D) Phosphorus pentabromide: PBr_5 ✓

The correct formulas include Dinitrogen tetroxide as N_2O_4 , Carbon tetrachloride as CCl_4 , and Phosphorus pentabromide as PBr_5 .

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The correct formulas include Dinitrogen tetroxide as N_2O_4 , Carbon tetrachloride as CCl_4 , and Phosphorus pentabromide as PBr_5 .

Given the compound name "Dihydrogen monoxide," write its chemical formula.

The chemical formula for Dihydrogen monoxide is H_2O .

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The chemical formula for Dihydrogen monoxide is H_2O .

Analyze the following compound name: "Tetraphosphorus decoxide." How many oxygen atoms are present in the compound?

- undefined. A) 4
undefined. B) 8
undefined. C) 10 ✓
undefined. D) 12

The compound contains 10 oxygen atoms.

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The compound "Tetraphosphorus decoxide" contains 10 oxygen atoms.

Which of the following statements are true about covalent compounds? (Select all that apply)

- undefined. A) They are typically formed between metals and non-metals.
undefined. B) They involve the sharing of electrons. ✓
undefined. C) They can form molecules with multiple bonds. ✓
undefined. D) They are generally good conductors of electricity.

The true statements are: They involve the sharing of electrons, and they can form molecules with multiple bonds.

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True statements about covalent compounds include that they involve the sharing of electrons and can form molecules with multiple bonds.

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True statements about covalent compounds include that they involve the sharing of electrons and can form molecules with multiple bonds.

Compare and contrast the naming conventions of ionic and covalent compounds.

Ionic compounds are named based on the charges of the ions, while covalent compounds use prefixes to indicate the number of atoms.

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Part 4: Evaluation and Creation

Evaluate the following statement: "The compound CO_2 is named carbon dioxide because it contains two oxygen atoms." Is this statement:

undefined. A) True ✓

- undefined. B) False
- undefined. C) Not applicable
- undefined. D) Uncertain

The statement is true; CO_2 is named carbon dioxide because it contains two oxygen atoms.

Evaluate the following statement: "The compound CO_2 is named carbon dioxide because it contains two oxygen atoms." Is this statement:

undefined. A) True ✓

- undefined. B) False
- undefined. C)
- undefined. D)

The statement is true; CO_2 is named carbon dioxide due to the presence of two oxygen atoms.

Which of the following compounds would you expect to have a higher boiling point based on their molecular structure? (Select all that apply)

undefined. A) H_2O ✓

- undefined. B) CO_2
- undefined. C) CH_4

undefined. D) NH_3 ✓

The compounds H_2O and NH_3 would be expected to have higher boiling points due to hydrogen bonding.

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Compounds like H_2O and NH_3 are expected to have higher boiling points due to hydrogen bonding.

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- undefined. B) CO_2

undefined. C) CH₄

undefined. D) NH₃ ✓

Compounds like H₂O and NH₃ are expected to have higher boiling points due to hydrogen bonding.

Create a name for a hypothetical covalent compound composed of 3 phosphorus atoms and 5 oxygen atoms. Explain your naming process.

The name could be Triphosphorus pentoxide, using the prefixes for the number of each atom.

Create a name for a hypothetical covalent compound composed of 3 phosphorus atoms and 5 oxygen atoms. Explain your naming process.

A possible name for the compound could be Triphosphorus pentoxide, following the naming conventions for covalent compounds.

Create a name for a hypothetical covalent compound composed of 3 phosphorus atoms and 5 oxygen atoms. Explain your naming process.

A suitable name for the compound could be Triphosphorus pentoxide, derived from the prefixes for the number of each atom.