

## Acid Naming Worksheet Questions and Answers PDF

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### Part 1: Building a Foundation

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#### What is the definition of an acid?

*Hint: Think about what substances release in water.*

- A) A substance that releases hydroxide ions in water
- B) A substance that releases hydrogen ions in water ✓
- C) A substance that releases oxygen ions in water
- D) A substance that releases sodium ions in water

■ An acid is defined as a substance that releases hydrogen ions in water.

#### What is the definition of an acid?

*Hint: Consider the properties of acids.*

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- B) A substance that releases hydrogen ions in water ✓
- C) A substance that releases oxygen ions in water
- D) A substance that releases sodium ions in water

An acid is defined as a substance that releases hydrogen ions in water.

**Which of the following are examples of binary acids?**

*Hint: Consider the acids that consist of only two elements.*

- A) Hydrochloric acid (HCl) ✓
- B) Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>)
- C) Hydrobromic acid (HBr) ✓
- D) Nitric acid (HNO<sub>3</sub>)

Binary acids consist of hydrogen and one other nonmetal element.

**Which of the following are examples of binary acids?**

*Hint: Think about the structure of binary acids.*

- A) Hydrochloric acid (HCl) ✓
- B) Sulfuric acid (H<sub>2</sub>SO<sub>4</sub>)
- C) Hydrobromic acid (HBr) ✓
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- D) Nitric acid (HNO<sub>3</sub>)

Binary acids consist of hydrogen and one other nonmetal element.

**Describe the general naming convention for binary acids.**

*Hint: Think about the prefixes and suffixes used.*

**Binary acids are named using the prefix 'hydro-' followed by the root of the nonmetal and the suffix '-ic' with the word 'acid' at the end.**

**Describe the general naming convention for binary acids.**

*Hint: Consider the prefixes and suffixes used.*

**Binary acids are named using the prefix 'hydro-' followed by the root of the nonmetal and the suffix '-ic acid'.**

**Describe the general naming convention for binary acids.**

*Hint: Consider the prefixes and suffixes used.*

**Binary acids are typically named using the prefix 'hydro-' followed by the root of the nonmetal and the suffix '-ic'.**

**List the names of the following acids:**

Hint: Provide the common names for each acid.

1. A) HCl

| Hydrochloric acid

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2. B)  $\text{H}_2\text{SO}_4$

| Sulfuric acid

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3. C)  $\text{HNO}_3$

| Nitric acid

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| The names of the acids are Hydrochloric acid, Sulfuric acid, and Nitric acid.

**List the names of the following acids:**

Hint: Refer to the chemical formulas provided.

1. A) HCl

| Hydrochloric acid

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2. B)  $\text{H}_2\text{SO}_4$

| Sulfuric acid

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3. C)  $\text{HNO}_3$

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3. C)  $\text{HNO}_3$

| Nitric acid

| The names of the acids are Hydrochloric acid, Sulfuric acid, and Nitric acid.

**What is the suffix used in naming oxyacids that contain a polyatomic ion ending in "-ate"?**

*Hint: Consider the relationship between the suffixes of polyatomic ions and their corresponding acids.*

- A) -ous  
 B) -ic ✓  
 C) -ide  
 D) -ate

The suffix used is '-ic'.

**What is the suffix used in naming oxyacids that contain a polyatomic ion ending in "-ate"?**

*Hint: Think about the relationship between the suffix and the polyatomic ion.*

- A) -ous
- B) -ic ✓
- C) -ide
- D) -ate

The suffix used is '-ic'.

**What is the suffix used in naming oxyacids that contain a polyatomic ion ending in "-ate"?**

*Hint: Think about the relationship between the suffixes.*

- A) -ous
- B) -ic ✓
- C) -ide
- D) -ate

The suffix used is '-ic'.

## Part 2: Comprehension and Application

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**Which of the following are true about oxyacids?**

*Hint: Consider the components and naming conventions of oxyacids.*

- A) They contain hydrogen, oxygen, and another element. ✓
- B) They are named based on the polyatomic ion they contain. ✓
- C) They always end with the suffix "-ous."
- D) They can be named using the prefix "hydro-."

Oxyacids contain hydrogen, oxygen, and another element, and are named based on the polyatomic ion they contain.

**Explain why sulfuric acid is named as such based on its chemical composition.**

Hint: Consider the elements present in sulfuric acid.

Sulfuric acid is named for the presence of sulfur in its composition, along with hydrogen and oxygen.

**Which of the following are true about oxyacids?**

Hint: Consider the components of oxyacids.

- A) They contain hydrogen, oxygen, and another element. ✓
- B) They are named based on the polyatomic ion they contain. ✓
- C) They always end with the suffix "-ous."
- D) They can be named using the prefix "hydro-."

Oxyacids contain hydrogen, oxygen, and another element, and are named based on the polyatomic ion they contain.

**If you have an acid with the formula  $H_2CO_3$ , what is its name?**

Hint: Think about the common names of acids derived from carbon.

- A) Carbonic acid ✓
- B) Carbonous acid
- C) Hydrocarbonic acid
- D) Hydrocarbonous acid

The name of the acid  $H_2CO_3$  is Carbonic acid.

**Explain why sulfuric acid is named as such based on its chemical composition.**

Hint: Consider the elements present in sulfuric acid.

**Sulfuric acid is named for the sulfur atom present in its composition.**

**If you have an acid with the formula  $H_2CO_3$ , what is its name?**

*Hint: Consider the common names of acids.*

- A) Carbonic acid ✓**
- B) Carbonous acid
- C) Hydrocarbonic acid
- D) Hydrocarbonous acid

**The name of the acid is Carbonic acid.**

**Which of the following acids will conduct electricity in an aqueous solution?**

*Hint: Consider the dissociation of acids in water.*

- A) Hydrochloric acid (HCl) ✓**
- B) Acetic acid ( $CH_3COOH$ ) ✓**
- C) Phosphoric acid ( $H_3PO_4$ ) ✓**
- D) All of the above ✓**

**All of the listed acids will conduct electricity in an aqueous solution.**

**If you have an acid with the formula  $H_2CO_3$ , what is its name?**

*Hint: Think about the common names of acids.*

- A) Carbonic acid ✓**
- B) Carbonous acid
- C) Hydrocarbonic acid
- D) Hydrocarbonous acid

**The name of the acid  $H_2CO_3$  is Carbonic acid.**



Which of the following acids will conduct electricity in an aqueous solution?

Hint: Consider the dissociation of acids in water.

- A) Hydrochloric acid (HCl) ✓
- B) Acetic acid (CH<sub>3</sub>COOH) ✓
- C) Phosphoric acid (H<sub>3</sub>PO<sub>4</sub>) ✓
- D) All of the above ✓

■ All of the listed acids will conduct electricity in an aqueous solution.

Given the polyatomic ion phosphate (PO<sub>4</sub><sup>3-</sup>), predict the name of the acid H<sub>3</sub>PO<sub>4</sub>.

Hint: Consider the naming conventions for acids derived from polyatomic ions.

■ The name of the acid H<sub>3</sub>PO<sub>4</sub> is Phosphoric acid.

Which of the following acids will conduct electricity in an aqueous solution?

Hint: Consider the dissociation of acids in water.

- A) Hydrochloric acid (HCl) ✓
- B) Acetic acid (CH<sub>3</sub>COOH) ✓
- C) Phosphoric acid (H<sub>3</sub>PO<sub>4</sub>) ✓
- D) All of the above ✓

■ All of the listed acids will conduct electricity in an aqueous solution.

Given the polyatomic ion phosphate (PO<sub>4</sub><sup>3-</sup>), predict the name of the acid H<sub>3</sub>PO<sub>4</sub>.

Hint: Think about the naming conventions for acids.

**The name of the acid is Phosphoric acid.**

Given the polyatomic ion phosphate ( $\text{PO}_4^{3-}$ ), predict the name of the acid  $\text{H}_3\text{PO}_4$ .

*Hint: Consider the relationship between the ion and the acid name.*

**The name of the acid  $\text{H}_3\text{PO}_4$  is Phosphoric acid.**

### Part 3: Analysis, Evaluation, and Creation

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Which of the following statements best explains the difference between binary acids and oxyacids?

*Hint: Think about the components of each type of acid.*

- A) Binary acids contain only hydrogen and oxygen.
- B) Oxyacids contain hydrogen, oxygen, and another element. ✓
- C) Binary acids are named with the suffix "-ous."
- D) Oxyacids are named with the prefix "hydro-."

Oxyacids contain hydrogen, oxygen, and another element, while binary acids contain only hydrogen and one other nonmetal.

Which of the following statements best explains the difference between binary acids and oxyacids?

*Hint: Consider the components of each type of acid.*

- A) Binary acids contain only hydrogen and oxygen.
- B) Oxyacids contain hydrogen, oxygen, and another element. ✓
- C) Binary acids are named with the suffix "-ous."
- D) Oxyacids are named with the prefix "hydro-."

Binary acids contain only hydrogen and one other nonmetal, while oxyacids contain hydrogen, oxygen, and another element.

**Analyze the following acids and determine which are correctly named:**

*Hint: Consider the naming conventions for each acid.*

- A)  $\text{HNO}_2$  as nitrous acid ✓
- B)  $\text{HClO}_4$  as perchloric acid ✓
- C)  $\text{H}_2\text{SO}_3$  as sulfuric acid
- D)  $\text{HBr}$  as hydrobromic acid ✓

The correctly named acids are  $\text{HNO}_2$  as nitrous acid,  $\text{HClO}_4$  as perchloric acid, and  $\text{HBr}$  as hydrobromic acid.

**Which of the following statements best explains the difference between binary acids and oxyacids?**

*Hint: Think about the components of each type of acid.*

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Binary acids contain only hydrogen and one other nonmetal, while oxyacids contain hydrogen, oxygen, and another element.

**Analyze the following acids and determine which are correctly named:**

*Hint: Consider the naming conventions for acids.*

- A)  $\text{HNO}_2$  as nitrous acid ✓
- B)  $\text{HClO}_4$  as perchloric acid ✓
- C)  $\text{H}_2\text{SO}_3$  as sulfuric acid
- D)  $\text{HBr}$  as hydrobromic acid ✓

The correctly named acids are  $\text{HNO}_2$  as nitrous acid,  $\text{HClO}_4$  as perchloric acid, and  $\text{HBr}$  as hydrobromic acid.

**Compare and contrast the naming conventions of binary acids and oxyacids, providing examples for each.**

*Hint: Think about the structure and components of each type of acid.*

**Binary acids are named with the prefix 'hydro-' and the suffix '-ic', while oxyacids are named based on the polyatomic ion they contain.**

**Analyze the following acids and determine which are correctly named:**

*Hint: Consider the naming conventions for acids.*

- A)  $\text{HNO}_2$  as nitrous acid ✓
- B)  $\text{HClO}_4$  as perchloric acid ✓
- C)  $\text{H}_2\text{SO}_3$  as sulfuric acid
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The correctly named acids are  $\text{HNO}_2$  as nitrous acid,  $\text{HClO}_4$  as perchloric acid, and  $\text{HBr}$  as hydrobromic acid.

**Compare and contrast the naming conventions of binary acids and oxyacids, providing examples for each.**

*Hint: Think about the structure and naming rules.*

Binary acids are named with the prefix 'hydro-' and the suffix '-ic', while oxyacids are named based on the polyatomic ion present.

Which of the following acids would you expect to be the strongest in terms of ionization in water?

Hint: Consider the strength of the acids based on their dissociation in water.

- A) Hydrochloric acid (HCl) ✓
- B) Acetic acid (CH<sub>3</sub>COOH)
- C) Phosphoric acid (H<sub>3</sub>PO<sub>4</sub>)
- D) Sulfurous acid (H<sub>2</sub>SO<sub>3</sub>)

Hydrochloric acid (HCl) is expected to be the strongest acid in terms of ionization in water.

Compare and contrast the naming conventions of binary acids and oxyacids, providing examples for each.

Hint: Think about the prefixes and suffixes used in naming.

Binary acids use the prefix 'hydro-' and the suffix '-ic', while oxyacids are named based on the polyatomic ion present.

Which of the following acids would you expect to be the strongest in terms of ionization in water?

Hint: Consider the strength of acids in solution.

- A) Hydrochloric acid (HCl) ✓
- B) Acetic acid (CH<sub>3</sub>COOH)
- C) Phosphoric acid (H<sub>3</sub>PO<sub>4</sub>)
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Hydrochloric acid (HCl) is expected to be the strongest acid in terms of ionization in water.

Evaluate the following statements and select those that are true regarding acid properties:

Hint: Consider the general characteristics of acids.

- A) Acids can neutralize bases. ✓
- B) Acids are slippery to the touch.
- C) Acids have a pH greater than 7.
- D) Acids can corrode metals. ✓

The true statements regarding acid properties are that acids can neutralize bases and can corrode metals.

Which of the following acids would you expect to be the strongest in terms of ionization in water?

Hint: Consider the strength of acids in solution.

- A) Hydrochloric acid (HCl) ✓
- B) Acetic acid (CH<sub>3</sub>COOH)
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- B) Acids are slippery to the touch.
- C) Acids have a pH greater than 7.
- D) Acids can corrode metals. ✓

True statements include that acids can neutralize bases and can corrode metals.

Design a real-world experiment to test the conductivity of different acids in aqueous solutions. Describe the materials, procedure, and expected outcomes.

Hint: Think about the setup and what you want to measure.

The experiment should involve measuring the conductivity of various acid solutions using a conductivity meter.

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