

33 strong vs weak acids answer

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Strong Acids and Weak Acids: A Comprehensive Overview**

What is a Strong Acid and a Weak Acid?

- **Strong acids** are compounds that completely dissociate in water, releasing all their hydrogen ions (H^+). They have a pH of less than 7.
- **Weak acids** partially dissociate in water, releasing only a fraction of their hydrogen ions. They have a pH of greater than 7.

Differences Between Strong Acids and Weak Acids

Feature	Strong Acid	Weak Acid
Dissociation	Complete	Partial
pH	< 7	> 7
Conductivity	High	Low
Reactivity	Highly reactive	Less reactive
Ionization Constant (K_a)	Large ($>>1$)	Small (<1)

How to Determine a Strong or Weak Acid

To determine if an acid is strong or weak, you can use the following methods:

- **pH Measurement:** Strong acids have a pH below 7, while weak acids have a pH above 7.
- **Ionization Constant (K_a):** Strong acids have a large K_a , while weak acids have a small K_a .

- **Degree of Dissociation:** Strong acids dissociate completely, while weak acids dissociate only partially.

10 Strong Acids

- Hydrochloric Acid (HCl)
- Sulfuric Acid (H₂SO₄)
- Nitric Acid (HNO₃)
- Hydrofluoric Acid (HF)
- Hydroiodic Acid (HI)
- Perchloric Acid (HClO₄)
- Hydrobromic Acid (HBr)
- Nitrous Acid (HNO₂)
- Trichloroacetic Acid (CCl₃COOH)
- Acetic Anhydride ((CH₃CO)₂O)

Weak Acid Example

- Acetic Acid (CH₃COOH)

Difference Between a Weak and Strong Acid (Quizlet)

- Strong acids completely dissociate, while weak acids partially dissociate.
- Strong acids have a pH below 7, while weak acids have a pH above 7.
- Strong acids are highly reactive, while weak acids are less reactive.

How to Differentiate Between a Strong and Weak Base

- Strong bases completely dissociate in water, releasing all their hydroxide ions (OH⁻).
- Weak bases partially dissociate in water, releasing only a fraction of their hydroxide ions.

Example of a Strong Acid

- Hydrochloric Acid (HCl)

Which Acid is the Weakest?

- Formic Acid (HCOOH)

How to Identify the Strongest Acid

- The strongest acid is the one with the highest K_a value.

7 Strong Acids and Bases

Acids:

- HCl
- H₂SO₄
- HNO₃
- HClO₄
- HBr

Bases:

- NaOH
- KOH
- Ca(OH)₂

pH of a Strong and Weak Acid

- Strong acids have a pH below 7.
- Weak acids have a pH above 7.

6 Weak Acids

- Acetic Acid (CH₃COOH)
- Formic Acid (HCOOH)
- Benzoic Acid (C₆H₅COOH)

- Phosphoric Acid (H_3PO_4)
- Carbonic Acid (H_2CO_3)
- Boric Acid (H_3BO_3)

Two Examples of Strong Acids and Weak Acids

- Strong: Hydrochloric Acid (HCl)
- Weak: Acetic Acid (CH_3COOH)

How to Memorize Strong Acids

- Use acronyms such as "HCISO4HNO3HI" or "HSKBF."
- Associate the acids with their corrosive properties.

What's the Difference Between a Strong and Weak Base?

- Strong bases completely dissociate, while weak bases partially dissociate.
- Strong bases have a pH above 7, while weak bases have a pH below 7.

What is the Strongest Acid?

- Fluoroantimonic Acid (HSbF_6)

What pH is a Strong Acid?

- < 7

Can an Acid be Both Strong and Weak?

- No, an acid cannot be both strong and weak at the same time.

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