What is the advantages and disadvantages of acid and base?

As you known there were propose many definitions of acids and bases. The definitions that are commonly used are: the Arrhenious, the Bronsted-Lowry and the Lewis. Each definition has advantages and disadvantages.

According to the Arrhenius definition acids are the hydrogenous compounds that give H^+ cations when dissolved in water while bases are the compounds that give OH^- anions when dissolved in water.

According to the Bronsted-Lowry definition acids are the substances (molecules or ions) that give protons (H^+), while bases are the substances that receive protons.

Moreover, according to the Lewis definition acids are the substances that receive an electron pair, while bases are the substances that give an electron pair.

The **Arrhenius** definition has the following advantages and disadvantages:

Advantages

1. Acids and bases is classify according to their strength.
2. It is characterized by simplicity.

Disadvantages

1. It is limited in polar solvents.
2. It is restricted in solutions.

The **Bronsted-Lowry** definition has the following advantages and disadvantages:

Advantages

1. Acids and bases is classify according to their strength.
2. The theory can be expanded to other solvents besides water.

Disadvantages

1. It is restricted in solutions

The **Lewis** definition has the following advantages and disadvantages:

Advantages

1. It is more general and includes the definitions given by Arrhenius and Bronsted-Lowry.
2. It is characterized by simplicity.

Disadvantages

1. It doesn't directly classify acids and bases according to their strength.

We can not speak about advantages and disadvantages of acid and base, but we tell about there features and differences. The definition of acids and bases is different according to the different theories, but there are things that can we said for sure about them.

<u>Acids:</u>

- pH level below 7
- sour and corrosive
- soluble in water
- reacts with bases to make salt and water
- Examples: sulfuric acid, hydrochloric acid, nitric acid

Bases:

- pH level above 7
- slimy and soapy feeling
- chemical opposites of acids
- react with acids to produce salt and water
- Examples: copper hydroxide, sodium hydroxide, magnesium hydroxide