Table K Common Acids

1 Which compound yields H^+ ions as the only positive ions in an aqueous solution?

(1) KOH (3) CH_3OH
(2) NaOH (4) CH_3COOH

2 Which substance is an Arrhenius acid?

(1) H_2 (3) KCl
(2) HCl (4) NH_3

3 Which compounds are classified as Arrhenius acids?

(1) HCl and NaOH (3) NH_3 and H_2CO_3
(2) HNO_3 and NaCl (4) HBr and H_2SO_4

4 Which formula represents an Arrhenius acid?

(1) KCl (3) NH_3
(2) HCl (4) KOH

Base your answers to questions 5 on the information below and on your knowledge of chemistry.

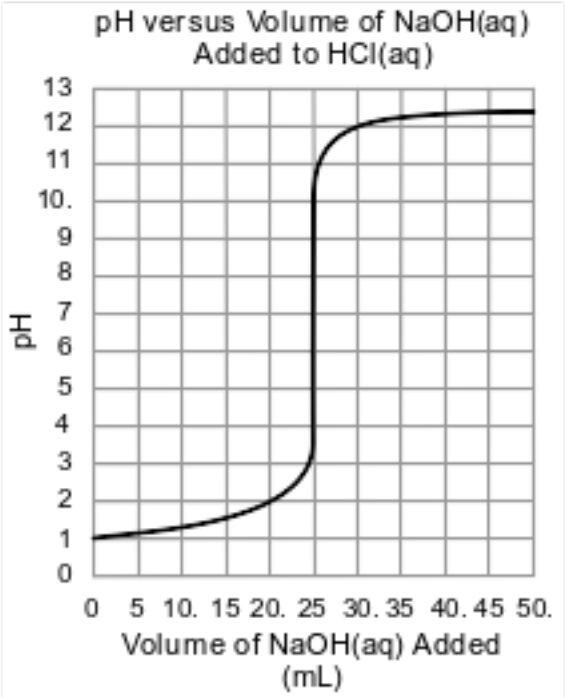
In a laboratory activity, a student titrates a 20.0-milliliter sample of HCl(aq) using 0.025 M NaOH(aq). In one of the titration trials, 17.6 milliliters of the base solution exactly neutralizes the acid sample.

5 Identify the positive ion in the sample of HCl(aq).

Base your answers to questions 6 on the information below and on your knowledge of chemistry.

A student is to determine the concentration of an NaOH(aq) solution by performing two different titrations. In a first titration, the student titrates 25.0 mL of 0.100 M H_2SO_4(aq) with NaOH(aq) of unknown concentration.

In a second titration, the student titrates 25.0 mL of 0.100 M HCl(aq) with a sample of the NaOH(aq). During this second titration, the volume of the NaOH(aq) added and the corresponding pH value of the reaction mixture is measured. The graph below represents the relationship between pH and the volume of the NaOH(aq) added for this second titration.



6 Identify the positive ion present in the H_2SO_4(aq) solution before the titration.

Answer Keys

1 4

2 2

3 4

4 2

5 Allow 1 credit. Acceptable responses include, but are not limited to:
- hydronium ion
- H_3O^+
- hydronium
- H^+
- hydrogen ion
- $H_3O^+(aq)$
- hydrogen
- $H^+(aq)$
- proton

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- hydronium ion
- H_3O^+
- hydronium
- H^+
- hydrogen ion
- $H_3O^+(aq)$
- hydrogen
- H^+ (aq)
- proton