



Chemistry

Name: _____

Section _____ ACIDS AND METALS WS Date: _____

Directions (1-7): For each statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. Some questions may require the use of the 2011 Edition Reference Tables for Physical Setting/Chemistry.

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| <p>1 Which metal would react spontaneously with hydrochloric acid?</p> <p>(1) gold (3) copper
(2) silver (4) zinc</p> <p>2 Which compound is classified as a salt?</p> <p>(1) Na_3PO_4 (3) CH_3COOH
(2) H_3PO_4 (4) $\text{Ca}(\text{OH})_2$</p> <p>3 Which compound is a salt?</p> <p>(1) CH_3COOH (3) NaOH
(2) $\text{C}_2\text{H}_5\text{OH}$ (4) $\text{NaC}_2\text{H}_3\text{O}_2$</p> <p>4 Which compound reacts with an acid to produce water and a salt?</p> <p>(1) CH_3Cl (3) KCl
(2) CH_3COOH (4) KOH</p> | <p>5 Which products are formed when an acid reacts with a base?</p> <p>(1) carbon dioxide and water
(2) alcohol and carbon dioxide
(3) soap and glycerin
(4) salt and water</p> <p>6 Which of the following 1.0-molar solutions would cause the light bulb of a conductivity tester to glow most brightly?</p> <p>(1) CH_3COOH (3) NaOH
(2) $\text{C}_2\text{H}_5\text{OH}$ (4) $\text{NaC}_2\text{H}_3\text{O}_2$</p> <p>7 Which metal would react most readily with HCl to release hydrogen gas?</p> <p>(1) $\text{Al}_{(s)}$ (3) $\text{Hg}_{(l)}$
(2) $\text{Zn}_{(s)}$ (4) $\text{Ag}_{(s)}$</p> |
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If the following reactions do occur, write the balanced equation and the name of the salt formed. If no reaction occurs, write 'no reaction.'

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|---------------------------------|--|--------------------|
| 8 calcium and hydrochloric acid | $\text{Ca} + 2 \text{HCl} \rightarrow \text{CaCl}_2 + \text{H}_2$ | calcium chloride |
| 9 zinc and dilute nitric acid | $\text{Zn} + 2 \text{HNO}_3 \rightarrow \text{Zn}(\text{NO}_3)_2 + \text{H}_2$ | zinc nitrate |
| 10 lead and carbonic acid | $\text{Pb} + \text{H}_2\text{CO}_3 \rightarrow \text{PbCO}_3 + \text{H}_2$ | lead(II) carbonate |
| 11 aluminum and acetic acid | $2 \text{Al} + 6 \text{HC}_2\text{H}_3\text{O}_2 \rightarrow \text{Al}(\text{C}_2\text{H}_3\text{O}_2)_3 + 3 \text{H}_2$ | aluminum acetate |
| 12 copper and phosphoric acid | No reaction. | |

Write the name of the salt formed and the balanced equation for each of the following reactions.

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| 13 nitric acid and sodium hydroxide | $\text{HNO}_3 + \text{NaOH} \rightarrow \text{NaNO}_3 + \text{H}_2\text{O}$ | sodium nitrate |
| 14 nitric acid and magnesium hydroxide | $2 \text{HNO}_3 + \text{Mg}(\text{OH})_2 \rightarrow \text{Mg}(\text{NO}_3)_2 + 2 \text{H}_2\text{O}$ | magnesium nitrate |
| 15 sulfuric acid and magnesium hydroxide | $\text{H}_2\text{SO}_4 + \text{Mg}(\text{OH})_2 \rightarrow \text{MgSO}_4 + 2 \text{H}_2\text{O}$ | magnesium sulfate |
| 16 sulfuric acid and potassium hydroxide | $\text{H}_2\text{SO}_4 + 2 \text{KOH} \rightarrow \text{K}_2\text{SO}_4 + 2 \text{H}_2\text{O}$ | potassium sulfate |
| 17 phosphoric acid and lithium hydroxide | $\text{H}_3\text{PO}_4 + 3 \text{LiOH} \rightarrow \text{Li}_3\text{PO}_4 + 3 \text{H}_2\text{O}$ | lithium phosphate |
| 18 phosphoric acid and calcium hydroxide | $2 \text{H}_3\text{PO}_4 + 3 \text{Ca}(\text{OH})_2 \rightarrow \text{Ca}_3(\text{PO}_4)_2 + 6 \text{H}_2\text{O}$ | calcium phosphate |