



Chem!stry

Name: ()

Class:

Date: / /

Writing Balanced Chemical Equations for the Reactions Between Acids, Metals, Bases and Carbonates – Answers

- 1) $2\text{HCl}_{(\text{aq})} + \text{Mg}_{(\text{s})} \rightarrow \text{MgCl}_{2(\text{aq})} + \text{H}_{2(\text{g})}$
- 2) $\text{HCl}_{(\text{aq})} + \text{NaOH}_{(\text{aq})} \rightarrow \text{NaCl}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$
- 3) $2\text{HCl}_{(\text{aq})} + \text{Na}_2\text{CO}_{3(\text{s})} \rightarrow 2\text{NaCl}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} + \text{CO}_{2(\text{g})}$
- 4) $2\text{HCl}_{(\text{aq})} + \text{CuO}_{(\text{s})} \rightarrow \text{CuCl}_{2(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$
- 5) $6\text{HCl}_{(\text{aq})} + \text{Fe}_2\text{O}_{3(\text{s})} \rightarrow 2\text{FeCl}_{3(\text{aq})} + 3\text{H}_2\text{O}_{(\text{l})}$
- 6) $2\text{HCl}_{(\text{aq})} + \text{Ca}(\text{OH})_{2(\text{s})} \rightarrow \text{CaCl}_{2(\text{aq})} + 2\text{H}_2\text{O}_{(\text{l})}$
- 7) $2\text{HNO}_{3(\text{aq})} + \text{Mg}_{(\text{s})} \rightarrow \text{Mg}(\text{NO}_3)_{2(\text{aq})} + \text{H}_{2(\text{g})}$
- 8) $\text{HNO}_{3(\text{aq})} + \text{NaOH}_{(\text{aq})} \rightarrow \text{NaNO}_{3(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$
- 9) $2\text{HNO}_{3(\text{aq})} + \text{Na}_2\text{CO}_{3(\text{s})} \rightarrow 2\text{NaNO}_{3(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} + \text{CO}_{2(\text{g})}$
- 10) $2\text{HNO}_{3(\text{aq})} + \text{CuO}_{(\text{s})} \rightarrow \text{Cu}(\text{NO}_3)_{2(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$
- 11) $6\text{HNO}_{3(\text{aq})} + \text{Fe}_2\text{O}_{3(\text{s})} \rightarrow 2\text{Fe}(\text{NO}_3)_{3(\text{aq})} + 3\text{H}_2\text{O}_{(\text{l})}$
- 12) $2\text{HNO}_{3(\text{aq})} + \text{Ca}(\text{OH})_{2(\text{s})} \rightarrow \text{Ca}(\text{NO}_3)_{2(\text{aq})} + 2\text{H}_2\text{O}_{(\text{l})}$
- 13) $2\text{CH}_3\text{COOH}_{(\text{aq})} + \text{Mg}_{(\text{s})} \rightarrow (\text{CH}_3\text{COO})_2\text{Mg}_{(\text{aq})} + \text{H}_{2(\text{g})}$
- 14) $\text{CH}_3\text{COOH}_{(\text{aq})} + \text{NaOH}_{(\text{aq})} \rightarrow \text{CH}_3\text{COONa}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$
- 15) $2\text{CH}_3\text{COOH}_{(\text{aq})} + \text{Na}_2\text{CO}_{3(\text{s})} \rightarrow 2\text{CH}_3\text{COONa}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} + \text{CO}_{2(\text{g})}$
- 16) $2\text{CH}_3\text{COOH}_{(\text{aq})} + \text{CuO}_{(\text{s})} \rightarrow (\text{CH}_3\text{COO})_2\text{Cu}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$
- 17) $6\text{CH}_3\text{COOH}_{(\text{aq})} + \text{Fe}_2\text{O}_{3(\text{s})} \rightarrow 2(\text{CH}_3\text{COO})_3\text{Fe}_{(\text{aq})} + 3\text{H}_2\text{O}_{(\text{l})}$
- 18) $2\text{CH}_3\text{COOH}_{(\text{aq})} + \text{Ca}(\text{OH})_{2(\text{s})} \rightarrow (\text{CH}_3\text{COO})_2\text{Ca}_{(\text{aq})} + 2\text{H}_2\text{O}_{(\text{l})}$
- 19) $\text{H}_2\text{SO}_{4(\text{aq})} + \text{Mg}_{(\text{s})} \rightarrow \text{MgSO}_{4(\text{aq})} + \text{H}_{2(\text{g})}$
- 20) $\text{H}_2\text{SO}_{4(\text{aq})} + 2\text{NaOH}_{(\text{aq})} \rightarrow \text{Na}_2\text{SO}_{4(\text{aq})} + 2\text{H}_2\text{O}_{(\text{l})}$
- 21) $\text{H}_2\text{SO}_{4(\text{aq})} + \text{Na}_2\text{CO}_{3(\text{s})} \rightarrow \text{Na}_2\text{SO}_{4(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} + \text{CO}_{2(\text{g})}$
- 22) $\text{H}_2\text{SO}_{4(\text{aq})} + \text{CuO}_{(\text{s})} \rightarrow \text{CuSO}_{4(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$

- 23) $3\text{H}_2\text{SO}_{4(\text{aq})} + \text{Fe}_2\text{O}_{3(\text{s})} \rightarrow \text{Fe}_2(\text{SO}_4)_{3(\text{aq})} + 3\text{H}_2\text{O}_{(\text{l})}$
- 24) $\text{H}_2\text{SO}_{4(\text{aq})} + \text{Ca}(\text{OH})_{2(\text{s})} \rightarrow \text{CaSO}_{4(\text{s})} + 2\text{H}_2\text{O}_{(\text{l})}$
- 25) $2\text{H}_3\text{PO}_{4(\text{aq})} + 3\text{Mg}_{(\text{s})} \rightarrow \text{Mg}_3(\text{PO}_4)_{2(\text{s})} + 3\text{H}_2_{(\text{g})}$
- 26) $\text{H}_3\text{PO}_{4(\text{aq})} + 3\text{NaOH}_{(\text{aq})} \rightarrow \text{Na}_3\text{PO}_{4(\text{aq})} + 3\text{H}_2\text{O}_{(\text{l})}$
- 27) $2\text{H}_3\text{PO}_{4(\text{aq})} + 3\text{Na}_2\text{CO}_{3(\text{s})} \rightarrow 2\text{Na}_3\text{PO}_{4(\text{aq})} + 3\text{H}_2\text{O}_{(\text{l})} + 3\text{CO}_{2(\text{g})}$
- 28) $2\text{H}_3\text{PO}_{4(\text{aq})} + 3\text{CuO}_{(\text{s})} \rightarrow \text{Cu}_3(\text{PO}_4)_{2(\text{s})} + 3\text{H}_2\text{O}_{(\text{l})}$
- 29) $2\text{H}_3\text{PO}_{4(\text{aq})} + \text{Fe}_2\text{O}_{3(\text{s})} \rightarrow 2\text{FePO}_{4(\text{s})} + 3\text{H}_2\text{O}_{(\text{l})}$
- 30) $2\text{H}_3\text{PO}_{4(\text{aq})} + 3\text{Ca}(\text{OH})_{2(\text{s})} \rightarrow \text{Ca}_3(\text{PO}_4)_{2(\text{s})} + 6\text{H}_2\text{O}_{(\text{l})}$
- 31) $2\text{HF}_{(\text{aq})} + \text{Mg}_{(\text{s})} \rightarrow \text{MgF}_{2(\text{aq})} + \text{H}_{2(\text{g})}$
- 32) $\text{HF}_{(\text{aq})} + \text{NaOH}_{(\text{aq})} \rightarrow \text{NaF}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$
- 33) $2\text{HF}_{(\text{aq})} + \text{Na}_2\text{CO}_{3(\text{s})} \rightarrow 2\text{NaF}_{(\text{aq})} + \text{H}_2\text{O}_{(\text{l})} + \text{CO}_{2(\text{g})}$
- 34) $2\text{HF}_{(\text{aq})} + \text{CuO}_{(\text{s})} \rightarrow \text{CuF}_{2(\text{aq})} + \text{H}_2\text{O}_{(\text{l})}$
- 35) $6\text{HF}_{(\text{aq})} + \text{Fe}_2\text{O}_{3(\text{s})} \rightarrow 2\text{FeF}_{3(\text{aq})} + 3\text{H}_2\text{O}_{(\text{l})}$
- 36) $2\text{HF}_{(\text{aq})} + \text{Ca}(\text{OH})_{2(\text{s})} \rightarrow \text{CaF}_{2(\text{aq})} + 2\text{H}_2\text{O}_{(\text{l})}$