

### GROUP A

Write balanced chemical equations for these reactions and identify the type of reaction. Do not write in this book. A2-A5

1. zinc + sulfur  $\rightarrow$  zinc sulfide.
2. potassium chloride + silver nitrate  $\rightarrow$  silver chloride(s) + potassium nitrate.
3. calcium oxide + water  $\rightarrow$  calcium hydroxide.
4. sodium hydroxide + hydrochloric acid (HCl)  $\rightarrow$  sodium chloride + water.
5. magnesium bromide + chlorine  $\rightarrow$  magnesium chloride + bromine.
6. sodium chloride + sulfuric acid (H<sub>2</sub>SO<sub>4</sub>)  $\rightarrow$  sodium sulfate + hydrogen chloride(g).
7. aluminum + iron(III) oxide  $\rightarrow$  aluminum oxide + iron.
8. ammonium nitrite  $\rightarrow$  nitrogen(g) + water.
9. silver nitrate + nickel  $\rightarrow$  nickel(II) nitrate + silver(s).
10. hydrogen + bromine  $\rightarrow$  hydrogen bromide(g).

Complete the word equation and write the balanced chemical equation. Give a reason for the product(s) in each case. Consult the activity series in Table 8-2, and solubilities in Appendix Table 12, as necessary. A2-A5

### GROUP B

If the word equation is complete, write and balance the chemical equation. If the word equation is incomplete, complete it. Write and balance the formula equation. Tell the type of reaction. Give a reason for the product(s). A2-A5

23. barium chloride + sodium sulfate  $\rightarrow$
24. calcium + hydrochloric acid  $\rightarrow$
25. iron(II) sulfide + hydrochloric acid  $\rightarrow$  hydrogen sulfide(g) +
26. zinc chloride + ammonium sulfide  $\rightarrow$
27. ammonia (NH<sub>3</sub>) + oxygen  $\rightarrow$  nitric acid (HNO<sub>3</sub>) + water.
28. magnesium + nitric acid  $\rightarrow$

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29. potassium + water  $\rightarrow$
30. sodium iodide + bromine  $\rightarrow$
31. silver + sulfur  $\rightarrow$
32. sodium chlorate  $\rightarrow$
33. carbon + steam (H<sub>2</sub>O)  $\rightarrow$  carbon monoxide(g) + hydrogen(g).
34. zinc + lead(II) acetate  $\rightarrow$
35. iron(III) hydroxide  $\rightarrow$
36. iron(III) oxide + carbon monoxide  $\rightarrow$  iron + carbon dioxide(g).
37. lead(II) acetate + hydrogen sulfide  $\rightarrow$
38. aluminum bromide + chlorine  $\rightarrow$
39. magnesium carbonate  $\rightarrow$
40. iron(III) chloride + sodium hydroxide  $\rightarrow$
41. calcium oxide + diphosphorus pentoxide  $\rightarrow$  calcium phosphate.
42. chromium + oxygen  $\rightarrow$
43. sodium + water  $\rightarrow$
44. calcium carbonate + hydrochloric acid  $\rightarrow$
45. calcium hydroxide + phosphoric acid (H<sub>3</sub>PO<sub>4</sub>)  $\rightarrow$
46. sodium carbonate + nitric acid  $\rightarrow$
47. aluminum hydroxide + sulfuric acid  $\rightarrow$
48. sodium sulfite + sulfuric acid  $\rightarrow$
49. copper + sulfuric acid  $\rightarrow$  copper(II) sulfate + water + sulfur dioxide(g).
50. calcium hydroxide + ammonium sulfate  $\rightarrow$  calcium sulfate + water + ammonia(g).