CHECK YOUR LEARNING

Suggested Answers

1. Single displacement reactions are reactions in which one element replaces another element in a compound. In a double displacement reaction, two elements in two different compounds switch places.
2. **(a)** The reactants in a single displacement reaction are an element and a compound.
   (b) The reactants in a double displacement reaction are two compounds.
3. **(a)** single **(b)** double **(c)** single **(d)** double **(e)** single
4. **(a)** $2Al + Fe_2O_3 \rightarrow Al_2O_3 + 2Fe$
   (b) $BaCl_2 + Na_2SO_4 \rightarrow BaSO_4 + 2NaCl$
   (c) $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$
   (d) $AgNO_3 + Na_3PO_4 \rightarrow Ag_3PO_4 + NaNO_3$
   (e) $2Ca + 2H_2O \rightarrow H_2 + 2Ca(OH)_2$
5. **(a)** This is a single displacement reaction.
   (b) Steel wool can be used to separate the copper from the sulfate and make iron sulfate in a single-displacement reaction.
6. The oxygen in carbon dioxide would add more fuel to the fire. By adding NaCl or SiO_2 to the fire, a single displacement reaction would take place and the magnesium would be tied into another compound.
7. **(a)** This is a single displacement reaction.
   (b) A better way would be to use a polish, which would change the tarnish into the original element by a single-displacement reaction. Scrubbing or polishing will permanently remove the silver sulfide.
8. **(a)** $Ag + 2HNO_3 \rightarrow AgNO_3 + NO_2 + H_2O$
   (b) The products must be evaporated to remove the water.
   (c) NO_2 is a toxic gas and ventilation is required to avoid harm.