**Skill 27.01 Problem 1**

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| Classify each reaction as one of the following types: decomposition, synthesis, single replacement, double replacement, combustion |
| * 1. Ba(OH)2(*s*) + AgNO3(*aq*) 🡪 Ba(NO3)2(*aq*) + AgOH(*s*) |
| * 1. Na(s) + H2O(l) 🡪 NaOH(aq) + H2 |
| * 1. Ca(OH)2(s) 🡪 CaO(s) + H2O(g) |
| * 1. Zn(s) + I2(s) 🡪 ZnI(s) |

**Skill 27.01 Problem 2**

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| (a) Write each reaction (b) Classify each reaction as one of the following types: decomposition, synthesis, single replacement, double replacement, combustion |
| 1. A piece of sodium (Na) metal is placed in water (H2O) and produces hydrogen (H2) gas and sodium hydroxide (NaOH) |
| 1. When zinc (Zn) metal is added to an aqueous solution of copper chloride (CuCl2), solid copper (Cu) precipitates and aqueous zinc chloride (ZnCl2) is produced. |
| 1. When solid carbon (C) combusts in a limited supply of oxygen (O2), carbon monoxide (CO) gas is produced. |
| 1. When methane gas (CH4) is burned, carbon dioxide (CO2) gas and water (H2O) vapor are produced. |

**Skill 27.01 Problem 3**

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| Classify each reaction as one of the following types: decomposition, synthesis, single replacement, double replacement, combustion |
| (a)    (b)    (c) |

**Skill 27.02 Problem 1**

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| Balance the following reactions: |
| 1. Na + O2 🡪 Na2O |
| 1. K + Cl2 🡪 KCl |
| 1. Al + NiSO4 🡪 3Ni + Al2(SO4)3 |
| 1. CH4 + O2 🡪 CO2 + H2O |
| 1. Na + H2O 🡪 NaOH + H2 |