Which of the following equations is balanced?

1. CO2 + 2KOH ® K2CO3 + 2H2O
2. CH4 + 2O2 ® CO2 + 2H2O
3. Be2C + H2O ® 2Be(OH)2 + CH4
4. Cu + 2HNO3 ® Cu(NO3)2 + NO + H2O

Which of the following equations is balanced?

1. 2Mg + O2 ® 2MgO
2. O3 ® 3O2
3. 2H2O2 ® H2O + O2
4. N2 + 3H2 ® 3NH3

The fertilizer ammonium sulfate [(NH4)2SO4] is prepared by the reaction between ammonia (NH3) and sulfuric acid:  
2NH3(g) + H2SO4(aq) ® (NH4)2SO4(aq)  
How many kilograms of NH3 are needed to produce 1.00 ´ 105 kg of (NH4)2SO4?

1. 1.70 ´ 104 kg
2. 3.22 ´ 103 kg
3. 2.58 ´ 104 kg
4. 7.42 ´ 104 kg

When baking soda (sodium bicarbonate or sodium hydrogen carbonate, NaHCO3) is heated, it releases carbon dioxide gas, which is responsible for the rising of cookies, donuts, and bread. The balanced equation for this process is: 2NaHCO3 ® Na2CO3 + H2O + CO2. Calculate the mass of NaHCO3 required to produce 20.5 g of CO2.

1. 8.38 g
2. 78.3 g
3. 157 g
4. 39.1 g