Balance the following equations and then solve the related problems:

1) Given the following equation:

$$\_$$
 Ca(OH)  $_2$  +  $\_$  H $_2$ SO $_4$   $\rightarrow$   $\_$  H $_2$ O +  $\_$  CaSO $_4$ 

How many grams of calcium sulfate will be formed if 130 grams of calcium hydroxide reacts with an excess of sulfuric acid?

2) Given the following equation:

$$\_$$
 Pb<sub>3</sub>(PO<sub>4</sub>)<sub>4</sub> +  $\_$  Ba(NO<sub>3</sub>)<sub>2</sub>  $\rightarrow$   $\_$  Pb(NO<sub>3</sub>)<sub>4</sub> +  $\_$  Ba<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>

How many grams of barium nitrate will be needed to make 325 grams of barium phosphate, assuming that you have an excess of lead (IV) phosphate?

## **Solutions**

1) Given the following equation:

$$Ca(OH)_2 + H_2SO_4 \rightarrow 2 H_2O + CaSO_4$$

How many grams of calcium sulfate will be formed if 130 grams of calcium hydroxide reacts with an excess of sulfuric acid?

## 240 g CaSO<sub>4</sub>

2) Given the following equation:

$$Pb_3(PO_4)_4 + 6 Ba(NO_3)_2 \rightarrow 3 Pb(NO_3)_4 + 2 Ba_3(PO_4)_2$$

How many grams of barium nitrate will be needed to make 325 grams of barium phosphate, assuming that you have an excess of lead (IV) phosphate?

423 g Ba<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>