

### 3 • Molecules & Compounds

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AP QUESTION—First Look

#### Problem vs. Exercise

An **exercise** is a calculation or other task where you know what to do. You are doing repeated examples to build up your skill, your speed, and your experience.

A **problem** is a situation in which you do *not* know what to do. So... what do you do when you do not know what to do? Read the problem, read it again, read it again, calculate a few things, read it again, and hopefully things fall into place. You learn to solve problems by solving problems. You add ideas to your “bag of tricks.”

#### 1982 B

Water is added to 4.267 grams of  $\text{UF}_6$ . The only products are 3.730 grams of a solid containing only uranium, oxygen and fluorine and 0.970 gram of a gas. The gas is 95.0% fluorine, and the remainder is hydrogen.

- (a) From these data, determine the empirical formula of the gas.
- (b) What fraction of the fluorine of the original compound is in the solid and what fraction in the gas after the reaction?
- (c) What is the formula of the solid product?

Note: There is also a part (d) that we would not yet know how to do.