PRACTICE

Answers in Appendix E

1. What is the mass in grams of 2.25 mol of the element iron, Fe?
2. What is the mass in grams of 0.375 mol of the element potassium, K?
3. What is the mass in grams of 0.0135 mol of the element sodium, Na?
4. What is the mass in grams of 16.3 mol of the element nickel, Ni?

extension

Go to **go.hrw.com** for more practice problems that ask you to convert from amount in moles to mass.

Keyword: HC6ATMX

SAMPLE PROBLEM C

For more help, go to the Math Tutor at the end of this chapter.

A chemist produced 11.9 g of aluminum, Al. How many moles of aluminum were produced?

SOLUTION

1 ANALYZE

Given: 11.9 g Al
Unknown: amount of Al in moles

2 PLAN

$$\text{mass of Al in grams} \longrightarrow \text{amount of Al in moles}$$

As shown in **Figure 11,** amount in moles can be obtained by *dividing* mass in grams by molar mass, which is mathematically the same as *multiplying* mass in grams by the *reciprocal* of molar mass.

$$\text{grams Al} \times \frac{\text{moles Al}}{\text{grams Al}} = \text{moles Al}$$

3 COMPUTE

The molar mass of aluminum from the periodic table is rounded to 26.98 g/mol.

$$11.9 \text{ g Al} \times \frac{1 \text{ mol Al}}{26.98 \text{ g Al}} = 0.441 \text{ mol Al}$$

4 EVALUATE

The answer is correctly given to three significant figures. The answer is reasonable because 11.9 g is somewhat less than half of 26.98 g.

PRACTICE

Answers in Appendix E

1. How many moles of calcium, Ca, are in 5.00 g of calcium?
2. How many moles of gold, Au, are in 3.60×10^{-5} g of gold?
3. How many moles of zinc, Zn, are in 0.535 g of zinc?

extension

Go to **go.hrw.com** for more practice problems that ask you to convert from mass to amount in moles.

Keyword: HC6ATMX