Step 5: To isolate ? and discover the correct amount to administer, divide both sides of the equation by 200.

$$\frac{100}{200} = \frac{200?}{200}$$
$$0.5 \text{ mL} = ?$$
$$200 \text{ mg}:1 \text{ mL}::100 \text{ mg}:? \text{ mL}$$
$$\text{mL} \times \text{mg (means)}$$
$$\text{mg} \times \text{mL (extremes)}$$

Setting the calculation up in one of these two ways should help you determine ratios correctly (Check Up 8.1).

The Formulation Method

The formulation method involves stacking units that are the same and multiplying by the unit requested. In this formula, D is the desired dose, H is the on-hand or available amount in ordered units, and Q is the quantity of liquid, tablets, capsules, etc. containing the available units. The **desired dose** is the dosage that has been ordered, or **ordered dose.** This dose must be in the same units as the **available dose** (the dosage on hand). The following is an example of a calculation using the formulation method.

Example 1: If the physician orders 200 mg, and the label reads "200 mg = 1 tablet," you would give one tablet when following the formula.

Step 1: Set up the D/H × Q formula with known values.

$$\frac{\text{D}}{\text{H}} \times \text{Q} = \frac{200 \text{ mg (order)}}{200 \text{ mg (label)}} \times 1 \text{ tablet}$$

Step 2: Solve the formula.

$$\frac{200 \text{ mg}}{200 \text{ mg}} \times 1 \text{ tablet}$$
$$1 \times 1 \text{ tablet} = 1 \text{ tablet}$$

CHECK UP 8.1: RATIO AND PROPORTION

Using ratio and proportion, calculate the dosage amount that must be administered.

1. $\frac{400 \text{ mg}}{1 \text{ mL}} = \frac{200 \text{ mg}}{? \text{ mL}}$ _____
2. $\frac{250 \text{ mg}}{1 \text{ mL}} = \frac{750 \text{ mg}}{? \text{ mL}}$ _____
3. $\frac{200 \text{ mg}}{2 \text{ mL}} = \frac{100 \text{ mg}}{? \text{ mL}}$ _____
4. $\frac{50 \text{ units}}{1 \text{ mL}} = \frac{150 \text{ units}}{? \text{ mL}}$ _____
5. $\frac{100 \text{ mg}}{1 \text{ tablet}} = \frac{200 \text{ mg}}{? \text{ tablets}}$ _____
6. 400 mg:1 mL::200 mg:? mL _____
7. 250 mg:1 mL::750 mg:? mL _____
8. 200 mg:2 mL::100 mg:? mL _____
9. 50 units:1 mL::150 units:? mL _____
10. 100 mg:1 tablet::200 mg:? tablets _____