4. A pharmaceutical company has designed a pill that contains 25 mg of a drug. If the company produces 367 kg of the drug, how many pills can the company make?

   Express both masses in terms of the same unit.

   0.001 kg = 1000 mg, so kilograms can be converted to milligrams by moving the decimal 6 places to the right.

   367 kg = 367000000 mg

   $$\frac{367000000\ \cancel{\text{mg}}}{25\ \cancel{\text{mg}}} = 14680000$$

   The company can make 14 680 000 pills.

Please complete *Lesson 1.3 Explore Your Understanding Assignment* located in *Workbook 1.3* before proceeding to *Lesson 1.4*.

Lesson 1.4: The Imperial System

Practice – IV

1. State an imperial unit that is appropriate for each of the following measurements.

   a. the length of a city block

      yard

   b. the width of your pencil

      inch

   c. the weight of a loaded semi-trailer

      ton

   d. the amount of gasoline used to fill a vehicle's gas tank

      gallon

2. Determine a conversion ratio that could be used to convert miles to inches.

$$1 \text{ mi} \cdot \frac{1760 \text{ yd}}{1 \text{ mi}} = 1760 \text{ yd}$$
$$1760 \text{ yd} \cdot \frac{36 \text{ in}}{1 \text{ yd}} = 63360 \text{ in}$$
$$1 \text{ mi} = 63360 \text{ in}$$

Other conversion ratios are possible, but all will reduce to 1 mi = 63360 in.

3. Complete the following conversions.

   a. 5000 lbs to tons

$$\frac{x}{5000 \text{ lbs}} = \frac{1 \text{ ton}}{2000 \text{ lbs}}$$
$$\frac{x}{\cancel{5000 \text{ lbs}}} \cdot \cancel{5000 \text{ lbs}} = \frac{1 \text{ ton}}{2000 \cancel{\text{lbs}}} \cdot 5000 \cancel{\text{lbs}}$$
$$x = 2.5 \text{ tons}$$

   b. _____ in = 6 ft

$$6 \cancel{\text{ft}} \cdot \frac{12 \text{ in}}{1 \cancel{\text{ft}}} = 72 \text{ in}$$

4. Ellen has 13 gallons of water, Shania has 50 quarts of water, and Sophie has 105 pints of water. Which of the girls has the most water?

Shania: 50 qt

$$\text{Ellen: } 13 \cancel{\text{gal}} \cdot \frac{4 \text{ qt}}{1 \cancel{\text{gal}}} = 52 \text{ qt}$$

$$\text{Sophie: } 105 \cancel{\text{pt}} \cdot \frac{1 \text{ qt}}{2 \cancel{\text{pt}}} = 52.5 \text{ qt}$$

Sophie has the most water.