PRACTICE
112m =
4 sec

Dimensional Analysis

2.2

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Dimensional analysis is used to solve problems that involve converting between different units of measurement.

PRACTICE ▷〜

1. Circle the conversion factor you would choose to solve the following problems.

   a. How many inches are in 6 meters?

   $$\frac{1 \text{ meter}}{39.4 \text{ inches}} \quad \text{OR} \quad \frac{39.4 \text{ inches}}{1 \text{ meter}}$$

   b. How many liters are in 10 U.S. gallons?

   $$\frac{1 \text{ gallon}}{3.79 \text{ liters}} \quad \text{OR} \quad \frac{3.79 \text{ liters}}{1 \text{ gallon}}$$

   c. 100 kilometers is equal to how many miles?

   $$\frac{1 \text{ kilometer}}{0.624 \text{ miles}} \quad \text{OR} \quad \frac{0.624 \text{ miles}}{1 \text{ kilometer}}$$

   d. 1,000,000 grams is equal to how many kilograms?

   $$\frac{0.001 \text{ kilogram}}{1 \text{ gram}} \quad \text{OR} \quad \frac{1 \text{ gram}}{0.001 \text{ kilogram}}$$

2. A grocery store just received a shipment of 200 cartons of eggs. Each carton holds one dozen eggs. If 12 eggs = 1 dozen, how many eggs did the store receive?

3. A marathon is 26.2 miles long. How many kilometers is a marathon? (1 mile = 1.61 km)

4. The speed limit on many interstate highways in the United States is 65 miles per hour. How many kilometers per hour is that? (1 mile = 1.61 km)

5. Ashley is going on a trip to London. She has saved $100.00 in spending money. When she arrives in England, she goes to a bank to change her money into pounds. She is told that the exchange rate is 1 British pound = 1.43 American dollars. The bank charges a fee of 4 pounds to change the money from dollars to pounds. How much money, in British pounds, will Ashley have if she changes all of her dollars to pounds?

6. Although it is widely believed that Germany's Autobahn highway has no speed limit whatsoever, much of the highway has regulated speed limits of 130 km/hr or less, and in some places speed is limited to just 60 km/hr.

   a. How many miles per hour is 130 km/hr? (1 mile = 1.61 km)

   b. How many miles per hour is 60 km/hr?

7. In England, a person's weight is commonly given in stones. One English stone is equal to 14 pounds. If an English friend tells you he weighs eleven stones, what is his weight in pounds?