

Units to Memorize for Chapter 7

8 ounces is one cup. Two cups is one pint. Two pints is one quart. 4 quarts is one gallon.

12 inches is one foot. Three feet is one yard. 5,280 feet is one mile.

16 ounces is one pound. 2,000 pounds is one ton.

2 tablespoon is 1 ounce. 3 teaspoons is 1 tablespoon.

In the metric system, kilo- = 1,000, centi- = 1/100, milli- = 1/1,000, micro- = 1 millionth, and nano- = 1 billionth. There are 1,000 meters in a kilometer, 100 centimeters in a meter, and 1,000 millimeters in a meter.

The book doesn't talk about micro- and nano- units, but you should know what they are, because they come up in science and technology. 1,000 microns = 1 mm. Microns are also called micrometers, and the abbreviation is μm , where μ is the Greek letter mu.

1,000 nanometers = 1 micron. The abbreviation for nanometer is nm.

Similarly, 1,000 micrograms equals 1 milligram, and 1,000 microliters equals 1 milliliter.

You should memorize the rough US-to-metric conversions below. I've put the three-digit approximations in parentheses, but you don't need to memorize the three-digit numbers.

1kg \approx 2lb (2.20)

1m \approx 3ft (3.28)

1L \approx 1qt (1.06)

1km \approx 0.6 miles (0.62)

The metric unit for weight is the gram and for volume is the liter. For weight, the most common units are grams, kilograms, and milligrams. There are 1,000 grams in a kilogram and 1,000 milligrams in a gram. For liters, the most common are liters and milliliters. There are 1,000 milliliters in a liter.

The weight and volume units were defined using the distance units. There is 1 milliliter in a cube 1cm by 1cm by 1cm, and that volume of water weighs 1 gram.

For temperature, the conversion formulas from Celsius to Fahrenheit are:

$$C = (5/9)(F-32) \quad F = (9/5)C + 32.$$

Water freezes at 0C, 32F. Water boils at 100C, 212F.