

Units of length

Imperial system

Complicated conversion factors

inch

1 foot = 12 inches

1 yard = 3 feet

1 mile = 1760 yards

Metric system

Simple conversion factors

meter (m)

1 m = 1000 mm
(millimeters)

1 mm = 1000 μm
(microns)


1 μm = 1000 nm
(nanometers)

1 km = 1000 m
(kilometers)

Scientific Notation

Provides a compact way of expressing very large and very small numbers


Large numbers

$$2.0 \times 10^{\textcircled{6}} = 2,000,000$$


Move the decimal point 6 places to the right

$$2.0 \times 10^6 = \underbrace{2000000.}$$

Small numbers

$$7.0 \times 10^{\textcircled{-5}} = 0.000007$$


Move the decimal point 5 places to the left

$$7.0 \times 10^{-5} = \underbrace{0.000007}$$

Homework 1

Problem 1. Write the following quantities using scientific notation:

$$1,340,000,000 \text{ kg} = \underline{\hspace{2cm}}$$

$$0.000,000,025 \text{ s} = \underline{\hspace{2cm}}$$

Problem 2. Express the following quantities in decimal notation:

$$87 \times 10^7 \text{ lb} = \underline{\hspace{2cm}}$$

$$8 \times 10^{-4} \text{ g} = \underline{\hspace{2cm}}$$

Problem 3. Carry out the following operations and express the result in scientific notation:

$$(7 \times 10^5) \times (2 \times 10^{-4}) =$$

$$\frac{5 \times 10^5}{5 \times 10^{-5}} =$$