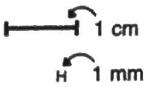
Metric Length

The meter (m) is the basic metric unit of length. A meter can be measured with a meter stick. The length of your arm is about 0.7 m.

A centimeter (cm) is one hundredth of a meter. (Centi means 0.01.) The centimeter is used to measure small lengths. The thickness of a nickel is about 0.2 cm.

A millimeter (mm) is one thousandth of a meter. (Milli means 0.001.) The millimeter is used to measure very small lengths. The thickness of a nickel is about 2 mm.

A kilometer (km) is one thousand meters. (Kilo means 1,000.) The kilometer is used to measure long distances. The distance between two cities is 98 km.



1 km = 1,000 m
1 m = 100 cm
1 cm = 10 mm

1 m = 0.001 km
1 cm = 0.01 m
1 mm = 0.1 cm

Find: 8.2 m = _____ cm

To change meters to a smaller unit, multiply.

1 m = 100 cm

$8.2 \times 100 = 820$

$8.2\ m = 820\ cm$

Find: 63 m = _____ km

To change meters to a larger unit, divide.

1,000 m = 1 km

$\frac{63}{1000} = 0.063$

$63\ m = 0.063\ km$

Change each measurement to the smaller unit.

1. 14.5 km = 14,500 m 7.25 m = _____ cm 18 cm = _____ mm 6.5 km = _____ m

2. 3.4 m = _____ cm 21 m = _____ mm 0.9 km = _____ m 29 cm = _____ mm

Change each measurement to the larger unit.

3. 48 mm = 4.8 cm 79.6 cm = _____ m 61 m = _____ km 657 mm = _____ m

4. 8,542 m = _____ km 3,128 mm = _____ m 930 cm = _____ m 75 mm = _____ cm

Solve.

5. Korinne had 15 meters of fabric. How many centimeters of fabric does she have?

Answer _____

6. The Bakers traveled 32,500 meters to see their cousins. How many kilometers did they travel?

Answer _____

Metric Mass

The word *mass* is not often used outside the field of science. The common term for mass is weight.

The gram (g) is the basic metric unit of mass. The gram is used to measure the weight of very light objects. A dime weighs about 2 grams.

The kilogram (kg) is one thousand grams. It is used to measure the weight of heavier objects. Use kg for the weight of a computer. Remember, kilo means 1,000.

1 kg = 1,000 g

1 g = 0.001 kg

Find: 8.4 kg = _____ g

To change kilograms to a smaller unit, multiply.

1 kg = 1,000 g
8.4 × 1,000 = 8,400
8.4 kg = 8,400 g

Find: 24.7 g = _____ kg

To change grams to a larger unit, divide.

1,000 g = 1 kg
$\frac{24.7}{1000}$ = 0.0247
24.7 g = 0.0247 kg

Change each measurement to the smaller unit.

1. 32 kg = 32,000 g 0.007 kg = _____ g 1.8 kg = _____ g 526 kg = _____ g

2. 0.49 kg = _____ g 825 kg = _____ g 6.783 kg = _____ g 0.08 kg = _____ g

Change each measurement to the larger unit.

3. 12.8 g = 0.0128 kg 9 g = _____ kg 137 g = _____ kg 23.25 g = _____ kg

4. 5,268 g = _____ kg 25 g = _____ kg 4.9 g = _____ kg 789 g = _____ kg

Solve.

5. A bag of potatoes holds 25 kilograms. How many grams of potatoes are in the bag?

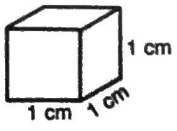
Answer _____

6. A carton of juice weighs 246 grams. How many kilograms does the carton weigh?

Answer _____

Metric Capacity

The liter (L) is the basic metric unit of capacity. A liter of liquid will fill a box 10 centimeters on each side. A large jug of apple cider holds about 4L.



A milliliter (mL) is one thousandth of a liter. It is used to measure very small amounts of liquid. A milliliter of liquid will fill a box 1 centimeter on each side. A small carton of milk holds about 250 mL.

Remember, milli means 0.001.

1 L = 1,000 mL

1 mL = 0.001 L

Find: 2.5 L = _____ mL

To change liters to a smaller unit, multiply.

1 L = 1,000 mL

$2.5 \times 1{,}000 = 2{,}500$

2.5 L = 2,500 mL

Find: 5,672 mL = _____ L

To change milliliters to a larger unit, divide.

1,000 mL = 1 L

$\frac{5672}{1000} = 5.672$

5,672 mL = 5.672 L

Change each measurement to the smaller unit.

1. 27 L = 27,000 mL 5.3 L = _____ mL 7.45 L = _____ mL 0.5 L = _____ mL

2. 0.825 L = _____ mL 2 L = _____ mL 39.6 L = _____ mL 2.6 L = _____ mL

Change each measurement to the larger unit.

3. 3,096 mL = 3.096 L 6,000 mL = _____ L 412.5 mL = _____ L 528 mL = _____ L

4. 58 mL = _____ L 798 mL = _____ L 19.2 mL = _____ L 6.34 mL = _____ L

Solve.

5. How many milliliters of medicine are in a 4.5 liter container?

Answer _____

6. A measuring cup holds 250 milliliters. How many liters does the measuring cup hold?

Answer _____