Unit Conversion

# Metric System – standard measurement

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Prefix | Part |  | Length (meters) |  | Mass (grams) |  | Volume (liters) |
| mili- | 1/1000 |  | 1 mm | 0.001 m |  | 1 mg | 0.001 g |   | 1 mL | 0.001 L |
| centi- | 1/100 |  | 1 cm | 0.010 m |  | 1 cg  | 0.010 g |   | 1 cL | 0.010 L |
| deci- | 1/10 |  | 1 dm | 0.100 m |  | 1 dg | 0.100 g |   | 1 dL | 0.100 L |
|  | 1 |  | 1 meter | 0001 m |  | 1 gram |  0001 g |   | 1 liter | 0 001 L |
| deca- | x 10 |  | 1 dam | 0010 m |  | 1 dag |  0010 g |  | 1 daL |  0010 L |
| hecto- | x 100 |  | 1 hm | 0100 m |  | 1 hg |  0100 g |  | 1 hL |  0 100 L |
| kilo- | x 1000 |  | 1 km | 1000 m |  | 1 kg |  1000 g |  | 1 kL |  1000 L |

# Imperial System – useful equivalencies

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Length |  | Mass |  | Volume |
| 1 inch | 2.54 cm |  | 1 ounce | 28.35 g |  | 1 fl.oz. | 29.574 mL |
| 12 in. | 1 foot |  | 16 oz. | 1 pound |  | 8 fl. oz. | 1 cup |
| 1 foot | 0.3048 m |  | 1 pound | 0.4536 kg |  | 1 cup | 250 mL |
| 3 ft. | 1 yard |  | 14 lb. | 1 stone |  | 2 cups | 1 pint |
| 1 yard | 0.9144 m |  | 1 stone | 6.3503 kg |  | 1 pint | 0.5 L |
| 1,760 yd | 1 mile |  | 1 ton | 1.016 t |  | 2 pints | 1 gallon |
| 1 mile | 1.6093 km |  | 1 tonne | 1,000 kg |  | 1 gallon | 3.7854 L |

# Sample Problems & Solutions

1. How many millimeters are in 1.25 meters?
	1. First write down what you are suppose to convert (1.25 meters).
	2. Then write it multiplied by the conversion factor that contains the answer (millimeters).
	3. Cancel the original unit (meters) by crossing it out on the top and bottom.
	4. Finish multiplying (1.25 x 1000 millimeters) and write the answer with the appropriate unit (1250 mm).

$$1.25 meters × \frac{1000 mm}{meter}=1250 mm$$

1. How many inches are in two and a half feet?
	1. First write down what you are suppose to convert (2.5 feet).
	2. Then write it multiplied by the conversion factor that contains the answer (inches).
	3. Cancel the original unit (feet) by crossing it out on the top and bottom.
	4. Finish multiplying (2.5 x 12 inches) and write the answer with the appropriate unit (30 inches).

$$2.5 feet × \frac{12 inches}{1 foot} = 30 inches$$

## Solve the Following Problems.

1. How many kilometers are there in 250 meters?
2. How many meters are there in 750 centimeters?
3. How many meters are there in 75 feet?
4. How many milligrams are there in 7.53 grams?
5. How many kilograms are there in 253.15 grams?
6. How many pounds are in 16 kilograms?
7. How many milliliters in five and a half liters?
8. If you have 12 fluid ounces, how many mL is that?
9. How many yards is 20 meters?
10. How many kilometers in 25 miles?
11. If you weigh 140 lbs. then how many stones is that?
12. If there’s half a milliliter in one drop of water, how many drops are in 37 mL?