Unit Conversion

DUE Friday, Aug 28th *Name Section*

The purpose of this homework assignment is for you to become comfortable converting between different units of measurement. Many publications in the United States still use the English system, whereas most scientists use the metric system. Therefore, it is often necessary to convert between the two systems. **SHOW YOUR WORK** for questions 5-14!

It is useful to be able to estimate lengths in the metric system. Examine a ruler, and get an idea of the length of a millimeter, centimeter, and meter.

|  |  |  |
| --- | --- | --- |
| **Common Units of Length** | **Abbreviation** | **Meter Equivalent** |
| **Milli**meter | **m**m | 1000 mm = 1 m |
| **Centi**meter | **c**m | 100 cm = 1 m |
| **Deci**meter | **d**m | 10 dm = 1 m |
| Meter | m | 1 m |
| **Kilo**meter | **k**m | 1 km = 1000 m |

1. An adult's height may be about

1) 1.8 km 2) 1.8 mm 3) 1.8 cm 4) 1.8 m

1. The longer edge of a credit card is about

1) 8.5 mm 2) 8.5 cm 3) 3.7 cm 4) 0.37 m

1. The thickness of the wire in a paper clip is about

1) 1 mm 2) 10 mm 3) 1 cm 4) 10 cm

1. The width of this sheet of paper is about

1) 22 m 2) 22 dm 3) 22 cm 4) 22 ml

It is very useful to know how to convert between units in the metric system. Example problems:

1) Convert 67.8 mm to m.

67.8

*mm*

 1*m*

 1000*mm* 

  0.0678*m*



2) Convert 12.8 mm to km. (HINT: You can avoid careless mistakes by first converting from mm into m, and then converting from m to km.)

12.8

*mm*

 1*m*  1*km*

 1000*mm*  1000*m* 



  .0000128*km*



**For questions 5-14, you must show your work to receive credit**

1. Convert 567 cm into m

567cm\*.01= 5.67m

1. Convert 11.1 cm into mm

1cm = 10 mm

11.1= 111mm

1. Convert 921 mg into kg

921mg / 1000000 =

.000921 kg

1. Convert 64.2 km into cm

64.2\* 10 ^6 = 64200000

1. Convert 23 g into mg

1 g= 1000 mg

23 g\* 1000= 23000mg

The following unit conversions may be helpful. Conversions in bold letters are particularly useful, and are worth memorizing.

**1 in = 2.54 cm**

1 ft = 12 in

**1 cm3 = 1 mL**

1 in3 = 16.4 cm3

1 ft3 = 28.3 liter

**1 gal = 3.79 liter**

**1 m = 3.3 ft**

1 mile = 5280 ft

1 metric ton = 1000 kg.

**2.2 lb. = 1 kg**

28.4 g = 1 oz.

16 oz. = 1 pound

Converting between the English and Metric systems is very similar to problems you did above.

Example problems:

1) Convert 346.5 lb. to kg.

346.5*lb* 1*kg*   157.5*kg*

 2.2*lb* 





2) Convert 23.6 cm to ft.

23.6

*cm*

 1*inch* 

 2.54*cm*  12*inch* 



1 *ft*

  0.77 *ft*



1. If a fossil trilobite is 12.3 cm long, how long is it in inches?

12cm\*.393701= 4.724412+.1181=4.84 inches

.3cm = .1181

1. You need to measure out 14 grams of NaCl. How many ounces is that?

1 ounces = 28.349523125g

14/28.349523125g

Ounces =.49

1. A block of phyllite weighs 150 pounds. How much does it weigh in grams?

1 pound = 453.592

150 pound \* 453.592= 68038.8 grams

1. A river is reported to be 42 feet wide. What is the river’s width in meters?

1 meter = 3.28084 foot

42 feet /3.28084 = 12.802 meters

1. If a map shows an outcrop is 2.1 miles away, how far is it in meters?

1 mile = 1609.34 meters

1609.34\*2 = 3128.68

.1 \* 1609.34 = 160.934 3128.68 + 160.934= 3379.61meters