

Metric Conversions

N.Q.1 Use units of measure (linear, area, capacity, rates, and time) as a way to understand problems

b. Convert units and rates using dimensional analysis (English–to–English and Metric– to–Metric without conversion factor provided and between English and Metric with conversion factor)

What am I learning today?

How to convert from one unit to another in Metric units

How will I show that I learned it?

Solve a metric conversion showing my work or setup

Metric Conversions

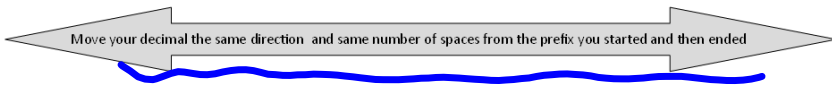
- Conversions on the metric scale are all powers of **10**.
- 1 large unit equals 10^n smaller units where "n" is the number of prefixes to get from the smaller to the bigger unit.

- For instance, $1 \text{ kg} = \overset{10^5}{\underline{100,000}} \text{ cg} = \underline{100,000} \text{ cg}$



Metric Conversions

King	Henry	Die	Unexpectedly	Drinking	Chocolate	Milk
<i>Kilo</i> 10 x 10 x 10 x LARGER than the unit	<i>Hecto</i> 10 x 10 x LARGER than the unit	<i>Deca</i> 10 x LARGER than the unit	<i>*Unit*</i> <i>Meter</i> (length) <i>Liter</i> (liquid volume) <i>Gram</i> (mass/weight) 1 unit	<i>Deci</i> 10 x SMALLER than the unit	<i>Centi</i> 10 x 10 x SMALLER than the unit	<i>Milli</i> 10 x 10 x 10 x SMALLER than the unit
1 kilo = 1,000 units	1 hecto = 100 units	1 deca = 10 units		10 deci = 1 unit	100 centi = 1 unit	1,000 milli = 1 unit
Examples: 5 kilo	50 hecto	500 deca	5,000 units	50,000 deci	500,000 centi	5,000,000 milli



Biggest → Smallest

1 km = 100,000 cm

1 L = 1,000 mL

1 dag = 100 dg

1 hm = 100 m dec

Example 1: Convert from 122 cL to kL

1 kL = 100,000 cL

$$\frac{122 \cancel{\text{cL}}}{100,000 \cancel{\text{cL}}} = \frac{122}{100,000} = .00122 \text{ kL}$$

Example 2: Convert from 45 g to mg

1 g = 1000 mg

$$\frac{45 \cancel{\text{g}}}{1 \cancel{\text{g}}} \times 1000 \text{ mg} = 45,000 \text{ mg}$$

Example 3: Convert from 4200 dm to hm

$$\text{km} \quad \text{h} \quad \text{d} \quad \text{m} \quad \text{cm} \quad \text{mm} \quad \text{km} \quad \text{hm} = \underline{1000} \text{ dm}$$

$$\frac{4200 \text{ dm}}{1000 \text{ dm}} = \frac{4200}{1000} = 4.2 \text{ hm}$$

Example 4: Convert from 4.32 dag to mg

khdBdcm 1 dag = 10,000 mg

$$\frac{4.32 \text{ dag} \cdot 10,000 \text{ mg}}{1 \text{ dag}} = 43,200 \text{ mg}$$

Pg. 15-16

Omit 2, 8, 10, 11,

Rate - $\frac{\text{distance}}{\text{time}}$ 14, 15, 16, 17

$1 \text{ m} = 3.28 \text{ ft}$

8. 5 meters | 60 sec | 60 min
 5 m/s | 1 second | 1 min | 1 hr
 3.28 ft | | 1 miles

 1 meters | 5280 ft
 59040 miles

 5280 hr

11.18 m/hr

