

Converting Between Metric and Imperial Units by C.D. Chester

We all know that many people are forced to switch between these units and will use an online calculator. However, my goal, with this article, is to give you the exact formulas.

So, the basics:

Weight - 1 *pound (lb.)* = 0.45359237 *kilograms (kg)*

Distance - 5280 *feet (ft.)* = 1760 *yards (y)* = 1609.344 *meters (m)* = 1 *mile (mi)*

Misc. - 1 *inch (in.)* = $\frac{1}{12}$ *feet (ft.)* = 2.54 *centimeters (cm)* = $\frac{1}{36}$ *yards (y)*

Using the three sets of information above you can achieve most common, or even advanced, measurements. For even further explanations:

$$1 \text{ kg} = \frac{10^8}{45359237} \text{ lb.'s} \approx 2.205 \text{ lb.'s}$$

$$1 \text{ cm} = \frac{50}{127} \text{ in.'s} \approx 0.3937 \text{ in.'s}$$

$$1 \text{ m} = \frac{125}{201168} \text{ mi} \approx 0.0006214 \text{ mi}$$

I have yet to cover one thing though: speed. Imperial units use miles per hour (MPH) while Metric relies upon kilometers per hour (KPH). I'll do the other basic speeds as well.

$$1 \text{ MPH} = 1.609344 \text{ KPH} = \frac{25146}{15625} \text{ KPH}$$

$$1 \text{ ft. per second} = 0.3048 \text{ meters per second} = \frac{381}{1250} \text{ meters per second}$$

$$1 \text{ meter per second} = \frac{1250}{381} \text{ ft. per second} \approx 3.28084 \text{ ft. per second}$$

$$1 \text{ ft. per second} = \frac{15}{22} \text{ MPH} \approx 0.682 \text{ MPH}$$

$$1 \text{ meter per second} = \frac{3125}{1397} \text{ MPH} \approx 2.237 \text{ MPH}$$