

# Dimensional Analysis + Conversion Factors

A conversion factor is a ratio that has the value of one.

$$\frac{\text{numerator}}{\text{denominator}} = 1 \qquad \frac{100 \text{ pennies}}{\text{dollar}} = 1$$

This method of converting one unit to another is called dimensional analysis.

Ex:  $4.5 \text{ feet} \times \frac{30.48 \text{ cm}}{\text{feet}} = 137.16 \text{ cm}$

↑  
conversion factor  
equal to one

$$\frac{30 \text{ students}}{\text{class}} \times \frac{3 \text{ slices}}{\text{student}} \times \frac{\text{pizza}}{12 \text{ slices}} = 7.5 \frac{\text{pizzas}}{\text{class}}$$

↓  
buy 8 pizzas  
class

Ex:

Corey's sister's car gets 30 miles of gas.

How many kilometers per gallon does she get?

$$\frac{1.609 \text{ km}}{\text{mile}} \times \frac{30 \text{ miles}}{\text{gallon}} = 48.27 \frac{\text{km}}{\text{gallon}}$$