

Ch. 2 - Measurement

III. Unit Conversions (p.39-41)

IPrefix Conversions

Immensional Analysis



1. Find the difference between the exponents of the two prefixes.

2. Move the decimal that many places.





	Prefix	Symbol	Factor	
move right	mega-	Μ	10 ⁶	
	kilo-	k	10 ³	
	deci-	d	1 0 ⁻¹	
	centi-	С	10-2	
	milli-	m	10 -3	
	micro-	μ	10 -6	
	nano-	n	10-9	
	pico-	þ	10-12	

move left





The "Factor-Label" Method

Units, or "labels" are canceled, or "factored" out



Steps:

- 1. Identify starting & ending units.
- 2. Line up conversion factors so units cancel.
- 3. Multiply all top numbers & divide by each bottom number.
- 4. Check units & answer.



Lining up conversion factors:

$\frac{1 \text{ in}}{2.54 \text{ cm}} = 1$

 $1 = \frac{2.54 \text{ cm}}{1 \text{ in}}$

Your European hairdresser wants to cut your hair 8 cm shorter. How many inches will he be cutting off?

cm



How many milliliters are in 1 quart of milk?

$\frac{dt}{1 gt} = \frac{1 gt}{1.057 gt} \frac{1000 mL}{1 Jt}$



5) Assume your mass is 55 kg. How many pounds do you weigh?

 $\frac{55 \text{ kg}}{1 \text{ kg}} = 121 \text{ lb}$

kg



lh

6) How many feet long is a 5K (5 km) race?

km

$\frac{5 \text{ km}}{1.609 \text{ km}} \frac{5280 \text{ ft}}{1 \text{ mi}} = 16,408 \text{ ft}$



ft

7) How many grams does a 10-lb. bag of potatoes weigh?

b



8) Taft football needs 550 cm for a 1st down. How many yards is this?

$\frac{\text{cm}}{550 \text{ cm}} \frac{1 \text{ jm}}{2.54 \text{ cm}} \frac{1 \text{ ft}}{12 \text{ jm}} \frac{1 \text{ yd}}{3 \text{ ft}} = 6.01 \text{ yd}$

