

## Factor Label Method of converting numbers

$1 \text{ ft} = 12 \text{ in}$

$1 \text{ mi} = 5280 \text{ ft}$

$3 \text{ ft.} = 1 \text{ yard}$

$100 \text{ cm} = 1 \text{ m}$

$1 \text{ mole} = 22.4 \text{ L}$

$1 \text{ calorie} = 4.184 \text{ Joules}$

$32 \text{ oz.} = 1 \text{ gal}$

$4 \text{ quarts} = 1 \text{ gal}$

$1000 \text{ g} = 1 \text{ kg}$

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

$2.2 \text{ lbs} = 1 \text{ kg}$

$3 \text{ swizzles} = 4 \text{ gluks}$

$10 \text{ mm} = 1 \text{ cm}$

Use dimensional analysis (also called the factor label method) to convert the following into the units indicate. **YOU MUST SHOW THE PROCESS . YOU ARE BEING GRADED ON THE METHOD, NOT THE ANSWER.**

1. What two conversion factors can be created from the following statements of equality? (Write 2 for each statement of equality)

$1 \text{ day} = 24 \text{ hrs}$

$2 \text{ ft}^2 = 576 \text{ in}^2$

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2. Convert  $9 \text{ ft}^2$  into  $\text{in}^2$

3. Convert 65 cm into inches

4. Convert 160 lbs into kg

5. 250 calories into Joules

6. 3.600 mi into ft

7. 88 gluks into swizzles

8. 4.5 ft into cm

9. 5.2 kg into g

10. 942 ft into yards

- 12 45000 sec into days

## Factor Label method of converting numbers

1 mi = 5280 ft  
1.0 Kg = 2.2 lbs  
1 in = 2.54 cm

1 gal = 32 oz      3 ft = 1 yd  
2 cups = 1 Quart    1 min = 60 sec    1 hr = 60 min  
1000 mL = 1.0 L

Convert the following using the factor label method into the appropriate unit

1.  $3.8 \frac{\text{miles}}{\text{hr}}$  into  $\frac{\text{ft}}{\text{min}}$

2.  $2.2 \frac{\text{lbs}}{\text{ft}}$  into  $\frac{\text{Kg}}{\text{in}}$

3.  $19000 \frac{\text{yd}}{\text{min}}$  into  $\frac{\text{miles}}{\text{hr}}$

Density is a measurement that in itself is a statement of equality

Statement of equality  
 $3.0 \text{ grams} = 1 \text{ mL}$

Conversion factors  
 $\frac{3.0 \text{ grams}}{1 \text{ mL}}$  (Density)

$\frac{1 \text{ mL}}{3.0 \text{ grams}}$

Answer the following Questions regarding Density

1. How many mL are there if you have 13 grams of Al (D= 2.1 g/ml or 2.1 g = 1 ml)
2. How many grams are there if you have 200 mls of Pb (D = 11 g/ml or 11 g = 1 ml )