

# SOLUTIONS...

Name : \_\_\_\_\_ Score : \_\_\_\_\_  
Teacher : \_\_\_\_\_ Date : \_\_\_\_\_

## Converting English and Metric

- 1 ) 16.53 pounds = 7.5 kilograms
- 2 ) 0.63 ounces = 18 grams
- 3 ) 13.5 pounds = 6.12 kilograms
- 4 ) 15 ounces = 425.24 grams
- 5 ) 35.27 pounds = 16 kilograms
- 6 ) 12.5 pounds = 5.67 kilograms
- 7 ) 8 ounces = 226.8 grams
- 8 ) 0.51 ounces = 14.5 grams
- 9 ) 8.82 pounds = 4 kilograms
- 10 ) 0.65 ounces = 18.5 grams
- 11 ) 47.4 pounds = 21.5 kilograms
- 12 ) 2.5 ounces = 70.87 grams
- 13 ) 0.34 ounces = 9.5 grams
- 14 ) 0.69 ounces = 19.5 grams
- 15 ) 20 pounds = 9.07 kilograms
- 16 ) 17 pounds = 7.71 kilograms
- 17 ) 6.5 pounds = 2.95 kilograms
- 18 ) 15.43 pounds = 7 kilograms
- 19 ) 8.5 ounces = 240.97 grams
- 20 ) 22 ounces = 623.69 grams

6. You have a recipe for a cheese dip that calls for  $1\frac{1}{4}$  lb of Stilton cheese. The store has packages that weigh 253 g, 421 g, 97 g, 398 g, and 124 g. Which packages will you purchase so that you have enough Stilton at the lowest cost?

$1.25 \text{ lb} \times \frac{16 \text{ oz}}{1 \text{ lb}} \times \frac{28.4 \text{ g}}{1 \text{ oz}} = 568 \text{ g}$

~~$421 + 124 + 97$~~

$398 + 124 + 97$

*get*

4. A gardener wants to mix his own fertilizer so that the strength is 6-7-5. This means that 6% of each tonne is nitrogen, 7% is phosphorus, and 5% is potassium. How many kilograms of nitrogen, phosphorus, and potassium will there be if he mixes 0.5 tonnes of fertilizer?

↑ metric tonne

$$0.5 \text{ t} \times \frac{1000 \text{ kg}}{1 \text{ t}} = 500 \text{ kg}$$

$0.06 \times 500 \rightarrow \boxed{N} \ 30 \text{ kg}$   
 $0.07 \times 500 \rightarrow \boxed{P} \ 35 \text{ kg}$   
 $0.05 \times 500 \rightarrow \boxed{K} \ 25 \text{ kg}$

# Making Conversions

During class today you will learn how to convert a unit of volume to a unit of weight.



**MATH ON THE JOB**

Aislin's family owns and operates an organic farm in Kinkora, Prince Edward Island. The farm has been in the family for four generations; it was Aislin's great-grandfather who first started growing potatoes on the farm in 1890.

Aislin grew up on the farm and always knew she wanted to continue on in the family business. After high school, she attended Nova Scotia Agricultural College (NSAC), just outside Truro, Nova Scotia, where she earned a diploma in agricultural business. She returned home to the family farm in 1999 and started thinking about the opportunities in organic farming. She took distance courses through NSAC to earn a Certificate of Specialization in Organic Agriculture, and started working towards organic certification for the farm. The farm's crops are all now certified organic.

A customer is purchasing barley from the farm to feed to his organic cattle. The barley costs \$3.59 per bushel. One tonne of barley contains 45.9 bushels. The barley was loaded directly into a truck that weighed 5550 kg when empty. When loaded, the truck weighed 12 100 kg.

- a) How many bushels of barley were loaded into the truck?
- b) How much will Aislin charge the customer for the barley?

300 bu  
\$1077



Aislin's family grows organic barley, oats, soybeans, and wheat.

**Bushel:** - is a measurement of **volume** (equal to about 2220 in<sup>3</sup>)  
- abbreviated as '**bu**'

**Question a)** Note the conversion factor for converting bushels of barley to metric tonnes is 45.9. Also, be aware of the difference in weight between a loaded truck and an empty truck.

**Question b)** Use your answer from (a) to determine the correct price.



### Math on the Job Solution

a) Calculate the weight of the barley

$$12,100 \text{ kg} - 5,500 \text{ kg} = 6,550 \text{ kg}$$

Convert kg to tonnes

$$6550 \text{ kg} / 1000 \text{ kg/t} = 6.55 \text{ t}$$

Convert tonnes to bushels

$$6.55 \text{ t} \times 45.9 \text{ bu/t} = 300.65 \text{ bu (rounded off)}$$

About 301 bushels were loaded onto the truck.

~~300.65~~ <sup>301</sup> bu  $\times$  ~~\$3.59/bu~~ <sup>\$3.59</sup> = ~~\$1079.33~~

## One More Example...

How many bushels (bu) of flax seed are there in 2.4 tonnes, if the conversion factor is 39.368 bushels/tonne?

$$2.4 \cancel{t} \times \frac{39.368 \text{ bu}}{\cancel{t}}$$

Solution:

$$2.4 \text{ t} \times 39.368 \text{ bu/t} = 94.5 \text{ bu}$$

## Try this one!

Laila bought 5 bushels of sunflower seeds. If the conversion is 73.487 bu/t, what is the weight of sunflower seeds:

- a) in kilograms?
- b) in pounds?

Remember: 1000 kg = 1 t  
1 kg = 2.2 lbs

$$a) \quad 5 \cancel{\text{bu}} \times \frac{1 \text{ t}}{73.487 \cancel{\text{bu}}} \times \frac{1000 \text{ kg}}{1 \text{ t}} = 68.04 \text{ kg}$$

$$b) \quad 68.04 \text{ kg} \times \frac{2.2 \text{ lbs}}{1 \text{ kg}} = 149.69 \text{ lbs}$$



## What does a conversion factor tell you???

EXAMPLE #1...

$$\frac{39.368 \text{ bu}}{t} \text{ vs } \frac{1 t}{39.368 \text{ bu}} = 0.025 t/\text{bu}$$

The conversion factor for white beans is 36.744 bu/t, and for corn it is 39.368 bu/t. Which weighs more per unit volume?

$$\frac{36.744 \text{ bu}}{1 t}$$

vs

$$\frac{1 t}{36.744 \text{ bu}} = 0.027 t/\text{bu}$$

Heavy

White Beans



**Homework:** 5.4 - Making Conversions.pdf

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Note: #4... 1 L of water = 1 kg

Quiz → C/F  
mg/g/kg/t  
oz/lbs/tn  
Skills & Word  
problems

5.4 - Making Conversions.pdf