

Making Conversions

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



From your textbook... Page 212. Read "Math on the Job". Once you reach the bottom portion attempt to answer the questions about bushels of barley.

- **Bushel:** - is a measurement of **volume** (equal to about 2220 in³)
- 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.



$$45.9 \text{ bu} / \text{t}$$

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

$$a) 1 \text{ t} = 45.9 \text{ bu}$$

$$\begin{aligned} \text{Truck load} &= 12100 - 5550 \\ &= 6550 \text{ kg} \end{aligned}$$

$$6550 \text{ kg} = \frac{1 \text{ t}}{1000 \text{ kg}} = 6.55 \text{ t}$$

$$6.55 \text{ t} \times \frac{45.9 \text{ bu}}{1 \text{ t}} = 300.65 \text{ bu}$$

$$b) \$ 3.59 / \text{bu} \times 300.65 \text{ bu} = \$ 1079.33$$

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.

b) $300.65 \text{ bu} \times \$3.59/\text{bu} = \$1079.33$

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? $1 \text{ t} = 39.368 \text{ bu}$

$$2.4 \text{ t} \times \frac{39.368 \text{ bu}}{1 \text{ t}} = 94.48 \text{ bu}$$

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?

$$1t = 73.487 \text{ bu}$$

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

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

$$= 68.04 \text{ kg}$$

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



How many ounces are in a gram...

let's make a conversion factor!

$$1 \text{ g} \times \frac{1 \text{ kg}}{1000 \text{ g}} \times \frac{2.2 \text{ lb}}{1 \text{ kg}} \times \frac{16 \text{ oz}}{1 \text{ lb}} =$$
$$= 0.0352 \text{ oz}$$

$$1 \text{ g} = 0.0352 \text{ oz}$$

$$28.4 \text{ g} = 1 \text{ oz}$$

$$\dots \dots \dots \boxed{1 \text{ oz} = 28.4 \text{ g}}$$

$$1 \text{ oz} = 28.4 \text{ g}$$

EXERCISE: Convert the following...

a) 56 g = 1.97 oz

$$1 \text{ oz} = 28.4 \text{ g}$$

$$56 \text{ g} \times \frac{1 \text{ oz}}{28.4 \text{ g}}$$

b) 120 lbs = 54.55 kg

$$120 \text{ lbs} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}}$$

c) 34 oz = 965.6 g

$$34 \text{ oz} \times \frac{28.4 \text{ g}}{1 \text{ oz}}$$

What does a conversion factor tell you???

EXAMPLE #1...

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?

White Beans

EXAMPLE #2

Alphonse is making chicken kebabs for 14 people. His recipe suggests about 7 oz of chicken per person. At the grocery store, the weight of the chicken is labelled in kilograms. How much chicken does Alphonse need to buy?

Remember: 1 kg = 2.2 lbs
1 oz = 28.4 g

$$(14)(7\text{oz}) = 98\text{oz}$$

$$98\text{oz} \times \frac{1\text{ lb}}{16\text{ oz}} \times \frac{1\text{ Kg}}{2.2\text{ lb}} = 2.18\text{ Kg}$$



Homework:

Worksheet - Converting Weights.docx



Converting English and Metric

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

Attachments

5.4 - Practice Problems.doc

Geo_Mea_Fin 10 - Chp. 5 Judging Criteria.docx

Chp 5.4 - Extend Your Thinking #8 p. 217 Solutions.docx

Geo_Mea_Fin 10 - Conversion Tables and Formula Sheet (Chp4_5).docx

Chapter 5 Sample Test.pdf

Chapter 5 Mass, Temperature, and Volume, Practice Your New Skills.pdf

Section 5.3 Mass in the Systeme International.pdf

Worksheet - Converting Weights.docx

Section 5.4 Detailed Solutions.pdf