

Curriculum Outcome

M1 Demonstrate an understanding of the Système International (SI) by describing the relationships of the units for length, area, volume, capacity, mass and temperature.

M2 Demonstrate an understanding of the Imperial system by: describing the relationships of the units for length, area, volume, capacity, mass and temperature.

Student Friendly: The relationship between degrees Celsius and degrees Fahrenheit

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**'

$1 \text{ bu} = 2220 \text{ in}^3$

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.



Bushel of Barley

1t = 45.9 bu

loaded - empty = amount of barley

bu

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

What will be the volume of barley?

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?

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

Solution:

$$2.4 \text{ t} \times \frac{39.368 \text{ bu}}{1 \text{ t}} = 94.5 \text{ bu}$$

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:

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

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

a) in kilograms?

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

b) in pounds?

$$68.04 \text{ kg} \times \frac{2.2 \text{ lb}}{1 \text{ kg}} = 149.7 \text{ lbs}$$

How many grams are in a ounce...
let's make a conversion factor!

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

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

$$1\text{lb}=16 \text{ oz}$$

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

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

How many ounces are in a gram...
let's make a conversion factor!

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

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

$$1\text{lb}=16 \text{ oz}$$

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

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

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?

$$1 \text{ bu} = 2220 \text{ in}^3$$

White beans: 36.744 bu = 1 t

Corn: 39.368 bu = 1 t

Answer:
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

$$\begin{aligned}\text{Total} &= 7 \text{ oz} \times 14 \text{ people} \\ &= 98 \text{ oz}\end{aligned}$$

$$98 \text{ oz} \times \frac{28.4 \text{ g}}{1 \text{ oz}} \times \frac{1 \text{ kg}}{1000 \text{ g}} = 2.78 \text{ kg}$$

Class work ???

Section 5.4 Detailed Solutions.pdf



Page 215
Questions: 1 to 7

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



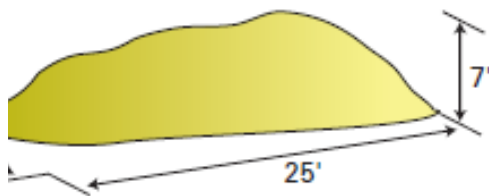
BUILD YOUR SKILLS

1. A box of baseballs arrives at Vinny's sporting goods store. The box of balls weighs 266 oz and there are 50 baseballs in the box. Vinny discards the box, which weighed 1 pound. What is the weight of each baseball in grams?
2. In her restaurant, Hana uses 25 lb of sugar each day. She asks Raj, her stock clerk, to order enough for the month of January. The sugar comes in 10 kg bags. How many bags of sugar must Raj order to be sure they have enough?
3. Hong is a building contractor. The building code in his area requires that roofs be built to withstand 30 pounds of weight per square foot of horizontal area.
 - a) How many kilograms per square metre is this?
 - b) After a snowfall, a square foot of flat roof covered with snow has a weight of 18.1 pounds pressing on it. If the flat area of the roof of a house is 1700 square feet, what is the weight of the snow on the roof:
 - i) in pounds?
 - ii) in kilograms?
4. Krystina is stacking flats of 355 mL bottles of water on a shelf. If there are 24 bottles in a flat, how much will 12 flats weigh? Ignore the weight of the plastic bottles and the cardboard flat.
 - a) in kilograms?
 - b) in pounds?



v that 1 litre of
s 1 kilogram?

5. Craig and Genevieve have purchased 26 cases of birdseed. Each case contains 16 boxes that weigh 20 ounces each. How much do the 26 cases weigh:
 - a) in pounds?
 - b) in kilograms?



6. The conversion factor for changing cubic metres of wheat to tonnes is 0.778. Frank has been told that he can estimate the volume of grain dumped on the ground by using the formula $V = l \times w \times h \times 0.5$. If the length of the pile is 25 feet, the width is 15 feet, and the height is approximately 7 feet, how many bushels of wheat are in the pile? (1 tonne of wheat contains approximately 36.744 bushels.)

7. Jason is having a new elevator installed in the four-storey apartment building he manages. Although many people will use the stairs, he knows that at times 5 or 6 people will be on the elevator, and more importantly, it will be used to move furniture. He estimates that the heaviest piece of furniture that people will move will be an upright grand piano. He has checked with movers and has found that pianos can weigh up to 545 kg. He assumes that two strong people would be needed to move a piano and they would ride with it in the elevator. To be on the safe side, Jason estimates that they will weigh about 90 kg each. The elevators he is considering have ratings of no more than 1000, 2000, 3000, 4000, 5000, or 6000 pounds. What is the lowest-rated elevator that Jason should install?

Attachments

Worksheet - Converting Weights.docx

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

Section 5.4 Detailed Solutions.pdf