

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 mass
Mass in the Imperial System.

Sep 7-2:50 PM

WARM-UP...

Chinook winds are known to cause great changes in temperature over a short period of time. The most extreme temperature change in a 24-hour period occurred in Loma, Montana, on January 17, 1972. The temperature rose from -54 °F to 49 °F.

a) What was the change in temperature in degrees Fahrenheit?
Solution?

b) What was the maximum/minimum temperatures in degrees Celsius?
Solution?

c) What was the change in temperature in degrees Celsius?
Solution?

A Chinook wind is a warm, dry wind that blows east of the Rocky Mountains, often causing significant temperature increases in a short time in winter.

Oct 4-8:03 AM

5.2 Mass in the Imperial System

- Mass** - a measure of the quantity of matter in an object.
 - "the amount of *stuff*".
 - in an imperial system the 'slug' is a measure of mass. $1 \text{ slug} = 1 \frac{\text{lb}_F \cdot \text{s}^2}{\text{ft}}$
 - * use of the pound is commonly used as a measure of mass.
- Weight** - a measure of the force of gravity on an object.
 - in an imperial system the pound is a measure of weight.

16 ounces (oz) = 1 pound (lb)
1 ton (tn) = 2000 pounds (lb)

1 oz - a slice of bread
1 lb - football
1 tn - an adult bison

*** Compared to the SI system...

1 lb = 0.453 592 37 kg OR 1 kg = 2.2 lbs

Oct 2-6:13 PM

Mass vs. Weight

Mass - a measure of the quantity of matter in an object.

Weight - a measure of the force of gravity on an object.

So does this mean your mass changes when you travel to the moon or does your weight change?

Oct 3-6:31 PM

What does a scale measure?

I wonder what I weigh? 170lbs?

Who Am I?

Oct 3-8:21 PM

Try these conversions:

Conversions Between Imperial Mass Units

16 oz = 1 lb 250 oz = _____ lbs
 75 lbs = _____ oz
 1 tn = 2000 lbs 750 lbs = _____ tn
 4 tn = _____ lbs
 172 oz = _____ lbs _____ oz

Oct 3-8:33 PM

EXERCISE: Copy and Complete the following Conversions!

16 ounces (oz) = 1 pound (lb)
 1 ton (tn) = 2000 pounds (lb)

- 48 ounces = _____ pounds
- 4 pounds = _____ ounces
- 1.5 pounds = _____ ounces
- 2 tons = _____ pounds
- 6000 pounds = _____ tons
- 80 ounces = _____ pounds
- 8 pounds = _____ ounces
- 1.5 tons = _____ pounds
- 64 ounces = _____ pounds

Oct 3-8:52 PM

HOMEWORK...

p. 201 #1 - 5

5.2 Worksheet - Mass in an Imperial System.docx

See next slides for questions

Oct 2-8:26 PM

Section 5.2: Worksheet
Mass in the Imperial System

- Calculate the conversions:
 - a. 24 oz = _____ lb
 - b. 7890 lb = _____ tn
 - c. 54 oz = _____ lb _____ oz
 - d. 6lb 2oz = _____ oz
 - e. 4.54 tn = _____ lb
 - f. 65 oz = _____ lb _____ oz
- What is the total weight, in pounds and ounces of six books on a shelf if they weigh 1 lb 7 oz, 12oz, 1 lb 2 oz, 15 oz, 9 oz, and 1 lb 3oz.
- A bakery uses a recipe for oatmeal cookies that calls for 1lb 4 oz of flour to make 9 dozen cookies, how many ounces of flour are needed to make 3 dozen cookies?
- Kris needs to transport 5 slabs of concrete to an apartment work site. If each slab weighs 48 pounds, Kris weighs 195 pounds, and the truck weighs 1.5 tons, what is the total weight of the loaded truck in pounds?
- Jamie is concerned about the weight that paint might add to a delicate structure he built. He estimates that he needs 1.5 gal of paint and that the structure can withstand 1.5 lb of weight. The weight of a particular paint is 5lb/gal. When it dries, the weight is only 5.4lb/gal. Can Jamie paint his structure without having collapse?
- 12 Pick organic blueberries sell for \$20.00 for a 12 pound box
 - a) How much would 3 pound cost?
 - b) How much would 12 ounces cost?
- What is the true cost per pound of a 10 pound box of oranges if the original price of the box was \$12.99 and 1/4 of them to be thrown away because they were moldy?

Answers:
 1a) 1.5 lb b) 13.15 tn c) 3 lb 4 oz d) 98 oz e) 9580 lb f) 60 lb 14 oz
 2) 4 lb 3 1/2 oz a) 3425 lb 5) paint weighs 13.22 lbs so yes Jamie can paint it
 6) a) \$1.67/lb b) \$1.25/12 oz 7) \$1.79/lb

Oct 1-8:38 AM

p. 201 #1 - 5

BUILD YOUR SKILLS

- Choose the correct item to go with each weight. About how much do you think each of the other items weighs?
 - a) About 1 ounce:
 - i) pat of butter
 - ii) loaf of bread
 - iii) house cat
 - b) About 1 pound:
 - i) sofa
 - ii) small basket of raspberries
 - iii) gallon of water
 - c) About 1 ton:
 - i) refrigerator
 - ii) large dog
 - iii) blue whale
- Which unit—ounce, pound, or ton—would you use to express the weight of the following? Give an alternate choice, if suitable, and justify your answer.
 - a) brick
 - b) plasma TV
 - c) box of chocolates
 - d) hippopotamus
 - e) duck
 - f) box of books
 - g) tractor-trailer truck

Oct 1-8:39 AM

- At birth, Johan weighed 7 pounds 9 ounces.
 - a) Why are newborns' weights given in pounds and ounces and not rounded to the nearest pound?
 - b) What would Johan's weight be in ounces?
 - c) Why are newborns' weights not given in ounces alone?
 - d) The nurse on the maternity ward told Dawn that her baby, Johan, would lose about 10% of his weight in the first week. Then the baby would likely gain about 5 ounces a week for the next four weeks. What should Dawn expect Johan to weigh at 5 weeks of age if he weighed 7 pounds 9 ounces at birth?
 - e) How does Johan's weight at 5 weeks compare to his weight at birth?
 - f) Would the comparison be different if he had weighed more or less at birth?
- A contractor is building a patio behind Polli's house. The cement slab will be 9 feet 8 inches long, 7 feet 3 inches wide, and 4 inches thick. If the concrete weighs 150 pounds a cubic foot, what is the weight of the concrete in Polli's patio?

Oct 1-8:45 AM

- Coffee is the second most highly traded commodity in the world. Jean owns a coffee shop in Caraquet, NB. He buys fresh fair-trade coffee beans because he knows that this helps protect the coffee farmer's income.

The beans he buys weigh 35 pounds a cubic foot. After he roasts them, they weigh only 27 pounds a cubic foot. He sells his coffee for \$17.95 a pound.

 - a) What do you think is the most highly traded commodity in the world?
 - b) Assume that the farmer selling the beans got a market floor price of \$1.35 a pound. If Jean buys 25 cubic feet of coffee beans, and sells it at \$17.95 a pound after roasting, compare the income of the farmer with Jean's selling price.

Oct 1-8:46 AM

NEED ANSWERS???

Section 5.2 Detailed Solutions.pdf



Oct 12-2:57 PM

Let's help Pierre with Math on the Job... p. 196

- Calculate the square footage...

Pierre will need...

Calculate how many pounds of sand...

Oct 2-8:19 PM

Attachments

5.2 Worksheet - Mass in an Imperial System.docx

Section 5.2 Detailed Solutions.pdf

Worksheet -Section_5.2_ Mass in Imperial System .docx