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?

49 - (-54) = **103°F**

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

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

$C = \frac{5}{9}(F - 32)$

Convert -54°F

Convert 49°F

5/9(-54-32)
-47.77777778
49-32
17
Ans*5/9
9.444444444

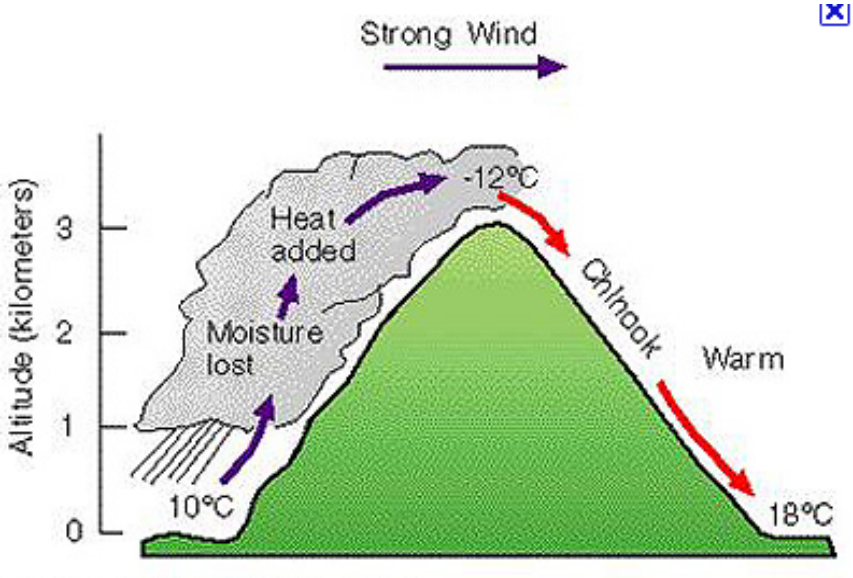
Min: -47.8°C

Max: 9.4°C

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

9 - (-48) = 57°C

57.2°C



Solution?

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.
  * 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**

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?

What does a scale measure?

Who Am I?

I wonder who weighs 170lbs?

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

- Calculate the square footage...

Pierre will need...

Calculate how many pounds of sand...

Conversions Between Imperial Mass Units

16 oz = 1 lb

1 tn = 2000 lbs

① $250\ oz \times \frac{1\ lbs}{16\ oz}$

② $75\ lbs \times \frac{16\ oz}{1\ lbs}$

③ $750\ lbs \times \frac{1\ tn}{2000\ lbs}$

④ $4\ tn \times \frac{2000\ lbs}{1\ tn}$

Try these conversions:

① 250 oz = 15.6 lbs

② 75 lbs = 1200 oz

③ 750 lbs = 0.375 tn

④ 4 tn = 8000 lbs

EXERCISE: Copy and Complete the following Conversions!

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

1. 48 ounces = 3 pounds
2. 4 pounds = 64 ounces
3. 1.5 pounds = 24 ounces
4. 2 tons = 4000 pounds
5. 6000 pounds = 3 tons
6. 80 ounces = 5 pounds
7. 8 pounds = 128 ounces
8. 1.5 tons = 3000 pounds
9. 64 ounces = 4 pounds

EXAMPLE 1:

18 oz

Kelly needs 1 pound 2 ounces of Gruyere cheese, 12 ounces of cheddar cheese, and 11 ounces of Swiss cheese for a fondue recipe. How many **pounds** of cheese does she need in all?

Solution is... 2 lb 9 oz

TOTAL $\Rightarrow$ 18 + 12 + 11

= 41 oz

$41\text{ oz} \times \frac{1\text{ lb}}{16\text{ oz}} \Rightarrow$ 2 lbs 9 oz

2 x 16 = 32

41 oz - 32

EXAMPLE 2:

CAB + TRAILER + LOAD = GROSS

The cab of Andy's semi-trailer weighs 8.7 tons and the trailer weighs 6.4 tons. If the loaded gross weight of the truck is 21.3 tons, what is the weight of load in...

a) tons?

b) pounds?

Solutions are...

a) 21.3 − 8.7 − 6.4 = 6.2 tns

b) $6.2 \text{ tn} \times \frac{2000 \text{ lbs}}{1 \text{ tn}} = 12400 \text{ lbs}$

EXAMPLE 3:

A 12-ounce can of vegetables costs $1.49. A 1 lb 2-oz can of the same vegetables costs $2.19. Which is a better buy?

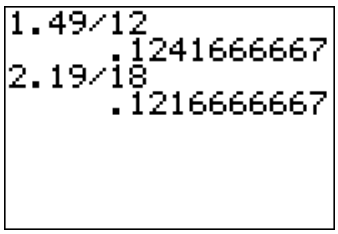
18 oz

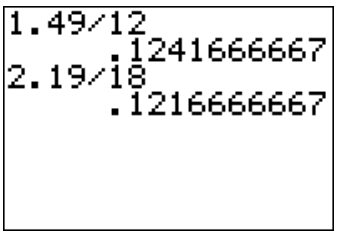
Solution is... 1 lb 2-oz ($0.1217/oz)

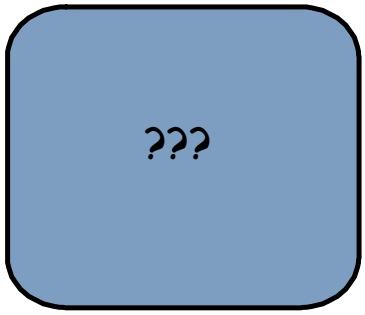
$1.49 / 12 oz

$2.19 / 18 oz

Better







HOMEWORK...

5.2 Worksheet - Mass in an Imperial System.docx

Attachments

5.2 Worksheet - Mass in an Imperial System.docx