Warm Up 4: Conversions
2-24-15

I can convert units showing a road map, unit cancelation and math.

Q1. When converting units, how do you get rid of the unwanted unit and get the wanted unit?

Q2. What is the conversion from 2 grams to mg.
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I can convert units showing a road map, unit cancelation and math.

Q1. When converting units, how do you get rid of the unwanted unit and get the wanted unit?
A1. Unwanted (starting unit) x wanted (new unit)  
    unwanted (starting)

Q2. What is the conversion from 2 grams to mg.
A2. \(2 \text{ g} \times 10^3 \text{mg} = 2 \times 10^3 \text{mg}\)
HW 3,4 and Quiz Review

ask neighbors
  -3 min

ask LeMay
  -? min
15] \[ 2.58 \times 10^3 \text{ mm} \quad \text{to} \quad m \\
\quad a. \quad mm^{10^3} \rightarrow m \\
b. \quad \frac{2.58 \times 10^3 \text{ mm}}{1} \cdot \frac{1 \times 10^0 \text{ m}}{1 \times 10^3 \text{ mm}} \\
\quad 2.58 \times 10^0 \text{ m}
a. $1 \text{ mm}^3 \rightarrow 1 \text{ m}$

b. $\frac{4 \times 10^3 \text{ mm}}{1 \times 10^3 \text{ mm}} \times \frac{1 \text{ m}}{1 \times 10^3 \text{ mm}} = 4 \times 10^{-3} \text{ m}$
\[ \begin{align*}
\text{(a)} & \quad 9 \text{ m}^3 \rightarrow 10^3 \text{ mm} \\
\text{(b)} & \quad 2.58 \times 10^3 \text{ m} \times \frac{1 \times 10^3 \text{ mm}}{1 \times 10^6 \text{ m}} \\
\text{Answer:} & \quad 2.58 \times 10^6 \text{ mm}
\end{align*} \]
\[ 9 \text{ mm}^{10^3} \rightarrow 1 \text{ m} \]

b. \[
\frac{4 \text{ mm}}{1} \times \frac{1 \text{ m}}{10^3 \text{ mm}} = \left[ 4 \times 10^{-3} \text{ m} \right] \\
0 - 3 = -3
\]

\[
\frac{4 \times 10^0}{1 \times 10^3} = \left[ 4 \times 10^{-3} \text{ m} \right]
\]
LT I can convert units showing a road map, unit cancelation and math.
15.9 \text{ mm} = 1 \text{ m}

b \quad 2.58 \times 10^3 \text{ mm} \times \frac{\text{m}}{1 \times 10^3 \text{ mm}} = 2.58 \times 10^0 \text{ m}
16  

a. \( m^1 \rightarrow 10^3 \text{mm} \)

\[ \frac{2.58 \times 10^3 \text{m}}{} \times \frac{1 \times 10^3 \text{mm}}{1 \text{m}} = 2.58 \times 10^6 \text{mm} \]
Shows how to get from one point to another.

Notes 3: Road Map
When we perform unit conversion we need a "road map" to show
1) where we start (starting unit)
2) where we want to finish (unit we end with)
3) what path we are taking (units we use)
4) Ratio from one unit to the next unit

Ex. from days to sec

\[
\text{days} \rightarrow \text{h} \rightarrow \text{min} \rightarrow \text{sec}
\]

\[
1 \text{ days} = 24 \text{h} = 60 \text{min} = 60 \times 60 \text{sec}
\]
When we perform unit conversion we need a "road map" to show

A3. 1) where we start (starting unit)
2) what path we are taking (units we use)
3) where we want to finish (unit we end with)
4) Ratio from one unit to the next unit

Ex. from m/s to km/h

\[ \frac{10}{\text{m/s}} \cdot \frac{1}{\text{km}} \cdot \frac{60}{\text{s}} \cdot \frac{1}{\text{min}} \cdot \frac{1}{60} = \frac{36}{\text{h}} \]
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I can convert units showing a road map, unit cancelation and math.

Q1. When converting units, how do you get rid of the unwanted unit and get the wanted unit?

Q2. What is the conversion from 2 grams to mg.

Q3. What does a road map show?

Q4. Knowing 1.00 in ~ 2.54 cm, show a road map from ft to m.
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LT I can convert units showing a road map, unit cancelation and math.

Q3. What does a road map show?
A3. 1) where we start (starting unit)
  2) what path we are taking (units we use)
  3) where we want to finish (unit we end with)
  4) Ratio from one unit to the next unit

Q4. Knowing 1 in ~ 2.54 cm, show a road map from ft to m.
   1 in ~ 2.54 cm
A4. ft -> in --> cm --> m
   1 ft = 12 in     \(10^2 = 1\) m