

#Jenny



Finally I get this ebook, thanks for all these I can get now!

#Rio



Cool! I'am really happy

#Markus Jensen



I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

#Hun Tsu



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#Che Salsa



My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler



so many fake sites. this is the first one which worked! Many thanks

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UNITS, PHYSICAL QUANTITIES AND VECTORS

- 1.1. **IDENTIFY:** Convert units from m to km and from km to ft.
SET UP: $1 \text{ m} = 2.54 \text{ cm}$, $1 \text{ km} = 1000 \text{ m}$, $12 \text{ in} = 1 \text{ ft}$, $1 \text{ mi} = 5280 \text{ ft}$.
EXECUTE: (a) $100 \text{ m} = 100 \left(\frac{2.54 \text{ cm}}{1 \text{ m}} \right) \left(\frac{1 \text{ in}}{2.54 \text{ cm}} \right) \left(\frac{1 \text{ ft}}{12 \text{ in}} \right) \left(\frac{1 \text{ mi}}{5280 \text{ ft}} \right) = 1.61 \text{ km}$
 (b) $100 \text{ km} = 100 \left(\frac{1000 \text{ m}}{1 \text{ km}} \right) \left(\frac{1 \text{ ft}}{0.3048 \text{ m}} \right) = 3.28 \times 10^5 \text{ ft}$
EVALUATE: A mile is a greater distance than a kilometer. There are 5280 ft in a mile but only 3280 ft in a km.
- 1.2. **IDENTIFY:** Convert volume units from L to in^3 .
SET UP: $1 \text{ L} = 1000 \text{ cm}^3$, $1 \text{ in} = 2.54 \text{ cm}$.
EXECUTE: $0.471 \text{ L} \left(\frac{1000 \text{ cm}^3}{1 \text{ L}} \right) \left(\frac{1 \text{ in}}{2.54 \text{ cm}} \right)^3 = 28.9 \text{ in}^3$
EVALUATE: 1 in^3 is greater than 1 cm^3 , so the volume in in^3 is a smaller number than the volume in cm^3 , which is 471 cm^3 .
- 1.3. **IDENTIFY:** We know the speed of light in m/s, $c = 3.00 \times 10^8 \text{ m/s}$. Convert 1.00 ft to m and then c to mi.
SET UP: The speed of light is $c = 3.00 \times 10^8 \text{ m/s}$, $1 \text{ ft} = 0.3048 \text{ m}$, $1 \text{ mi} = 1609 \text{ m}$.
EXECUTE: $c = \frac{3.00 \times 10^8 \text{ m}}{0.3048 \text{ m/ft}} = 9.84 \times 10^8 \text{ ft/s}$
 $c = \frac{9.84 \times 10^8 \text{ ft/s}}{1609 \text{ m/mi}} = 6.10 \times 10^8 \text{ mi/s}$
EVALUATE: In 1.00 s light travels $3.00 \times 10^8 \text{ m} = 3.00 \times 10^5 \text{ km} = 1.86 \times 10^5 \text{ mi}$.
- 1.4. **IDENTIFY:** Convert the units from kg and from cm^3 to m^3 .
SET UP: $1 \text{ kg} = 1000 \text{ g}$, $1 \text{ m} = 100 \text{ cm}$.
EXECUTE: $193 \frac{\text{g}}{\text{cm}^3} \left(\frac{1 \text{ kg}}{1000 \text{ g}} \right) \left(\frac{1 \text{ m}}{100 \text{ cm}} \right)^3 = 1.93 \times 10^3 \frac{\text{kg}}{\text{m}^3}$
EVALUATE: The ratio that converts cm to m is cubed, because we need to convert cm^3 to m^3 .
- 1.5. **IDENTIFY:** Convert volume units from m^3 to L.
SET UP: $1 \text{ L} = 1000 \text{ cm}^3$, $1 \text{ m} = 2.54 \text{ cm}$.
EXECUTE: $(27 \text{ m})^3 \left(\frac{1000 \text{ cm}^3}{1 \text{ L}} \right) \left(\frac{1 \text{ m}}{2.54 \text{ cm}} \right)^3 = 5.36 \text{ L}$
EVALUATE: The volume is 5360 cm^3 . 1 cm^3 is less than 1 m^3 , so the volume in cm^3 is a larger number than the volume in m^3 .
- 1.6. **IDENTIFY:** Convert ft^3 to m^3 and then to hectares.
SET UP: $1.00 \text{ hectare} = 1.00 \times 10^4 \text{ m}^2$, $1 \text{ ft} = 0.3048 \text{ m}$.

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