

Name: _____

Block: C (green) F (purple) H (yellow)

Dimensional Analysis

1. An object has a density of $3.65 \frac{\text{g}}{\text{cm}^3}$. If the volume of the object is 12.5 cm^3 , what is its mass?
2. A liquid solution has a salt concentration of $2.5 \frac{\text{mol}}{\ell}$. How many moles of salt are in 0.50ℓ of the solution?
3. A car is travelling at a speed of $65 \frac{\text{mi.}}{\text{hr.}}$ How many hours would it take for this car to travel 250 mi.?
4. Suppose the average temperature of the Earth is rising at a rate of $2.0 \frac{\text{°C}}{100 \text{ years}}$. When Mr. Bigler gives this same homework assignment to one of your children 25 years from now, how much warmer will the average temperature of the Earth be?

5. If a gas at “standard temperature and pressure” has a molar volume of $22.4 \frac{\ell}{\text{mol}}$, how many moles of this gas would there be in a 5.5ℓ balloon?
6. Suppose you have a job at which you earn \$8.00 per hour (which you can write as $8.00 \frac{\$}{\text{hr}}$). How many hours would you have to work to have enough money for a \$1200 car?
7. The continent of South America is drifting away from Africa at a rate of about $25 \frac{\text{mm}}{100 \text{ years}}$. If South America started out touching Africa, how many years did it take for South America to get to its present location, which is about 5000 km away from Africa? *Hint: don't forget that you will need to convert km to mm.*