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| How Dalton Estimated the mass of Hydrogen Atoms  CλeMis+ry: http://genest.weebly.com  Stop in for help every day at lunch and Tues &Thurs after school! |  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| 1. Can you see a molecule? \_\_\_\_\_\_\_\_\_\_ 2. Explain why \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3. Is there any easy way for an average person to accurately count how many molecules of air are in a balloon?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. What does Avogadro’s Principle tell us about the number of particles in the four balloons shown below?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (each balloon contains one substance, an element. There are no compounds.)   |  |  |  |  | | --- | --- | --- | --- | | 2.999 liters of Substance  A  184 grams | 2.999 liters of Substance  B  23 grams | 2.999 liters of Substance  C  276 grams | 2.999 liters of Substance  D  943 grams | | 1. Look at the balloons shown here.   We won’t use their volumes in any calculation: the volumes only serve to show that each balloon has the same number of particles.  If we arbitrarily choose **the lightest substance** and divide the others by it, we can get relative ratios of the mass of single pieces. Do this for each substance.   * 1. Relative Mass of Substance A   2. Relative Mass of Substance B   3. Relative Mass of Substance C   4. Relative Mass of Substance D |

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| 1. What does Avogadro’s Principle tell us about the number of particles in the four balloons shown below?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (each balloon contains one substance, an element. There are no compounds.)   |  |  |  |  | | --- | --- | --- | --- | | 4 liters of Substance  E  85 grams | 4 liters of Substance  F  221 grams | 4 liters of Substance  G  17 grams | 4 liters of Substance  H  102 grams | | 1. IF we arbitrarily choose **the lightest substance** and divide the others by it, we can get relative ratios of the mass of single pieces. Do this for each substance.    1. Relative Mass of Substance E    2. Relative Mass of Substance F    3. Relative Mass of Substance G    4. Relative Mass of Substance H |