

**CH301 Worksheet 1 Answer Key: High School Chemistry Questions.**

*For each problem, identify the kind of question BEFORE answering it.*

1. A 25 kg ball has a kinetic energy of 225 J. What is the speed of the ball?  
**What kind of question is this? energy**  
3 m/s
2. How many molecules of water are there in 100 mL of water? (The density of water = 1.000 g/mL.)  
**What kind of question is this? stoichiometry**  
3.34 x 10<sup>24</sup> molecules
3. Given that the atomic mass of carbon is given as 12.0107 g/mol, what are the approximate relative abundances of the two isotopes <sup>12</sup>C and <sup>13</sup>C? **What kind of question is this? isotopes**  
98.93% <sup>12</sup>C, 1.07% <sup>13</sup>C
4. In the electrolysis of 2H<sub>2</sub>O → 2H<sub>2</sub> + O<sub>2</sub>, how many atoms of O in O<sub>2</sub> are made from 4 g of H<sub>2</sub>O?  
**What kind of question is this? stoichiometry**  
1.34 x 10<sup>23</sup> molecules
5. What are the most likely ionic forms of (a) sodium and (b) calcium?  
**What kind of question is this? periodic trends**  
(a) Na<sup>+</sup>; (b) Ca<sup>2+</sup>
6. What is the product of a reaction between metallic lithium and oxygen, O<sub>2</sub>?  
**What kind of question is this? oxidation numbers**  
Li<sub>2</sub>O
7. Name the following species: (a) Cl<sup>-</sup>, (b) NO<sub>3</sub><sup>-</sup>, (c) C<sub>3</sub>H<sub>8</sub>. **What kind of question is this? naming**  
(a) chloride; (b) nitrate; (c) propane
8. The combustion of ethanol has the following equation: