Name _____ Date _____ Period _____

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Average Atomic Mass

Chemistry

Use a periodic table and a calculator. Show your setup with units. Round your final answer with significant figures.

1. Complete the table. The first row is done for you.

Hyphen notation	Nuclide symbol	Protons	Neutrons	Electrons (neutral)
Cl-35	$^{35}_{17}\mathrm{Cl}$	17	18	17
Cl-37				
C-14				
	$^{12}_{6}\mathrm{C}$			

2. Explain the difference between an isotope's mass number and an element's average atomic mass.
Sentence frame: *A mass number is _____ for one isotope. An average atomic mass is _____.*

3. Carbon-12 and carbon-13 are stable. Carbon-14 is radioactive.
(a) How are the three nuclei different?
(b) A proton is added to a carbon-14 nucleus. Is it still carbon? Explain.

4. An element has two isotopes: 10.0 amu (20.0%) and 11.0 amu (80.0%). Calculate its average atomic mass.
The first step is done for you: 20.0% → 0.200 and 80.0% → 0.800

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5. A sample has 60 atoms of X-20 and 40 atoms of X-22.

(a) Find the percent abundance of each isotope.

(b) Use the mass numbers as the masses to estimate the average atomic mass.

6. Element Q has two isotopes: 24.0 amu (70.0%) and 26.0 amu (30.0%). Calculate its average atomic mass.

7. An element has isotopes with mass numbers 63 and 65. Its average atomic mass is 63.5 amu, not 64.0 amu. Explain why.

8. An element has three isotopes: 30.0 amu (50.0%), 31.0 amu (30.0%), and 32.0 amu (20.0%). Calculate its average atomic mass.

9. An element has two isotopes, 50.0 amu and 52.0 amu. Its average atomic mass is 50.5 amu. Which isotope is more abundant? Explain.

10. Lithium has two isotopes: lithium-6 (6.015 amu) and lithium-7 (7.016 amu). Its average atomic mass is 6.94 amu. Find the percent abundance of each isotope.

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