

1: Up and Atom
HW 4: Review for Test

Name:
Class: Date:

Atomic Structure

1. Complete the table below about subatomic particles. (CW 10)

Subatomic Particle	Location	Charge
Proton		
Neutron		
Electron		

2. Complete the table below about isotopes. (CW 10)

Letter	Symbol	Name of Element	Atomic #	# p ⁺	# e ⁻	#N ⁰	Mass #	Charge
A	${}^3_1\text{H}$							0
B		Cobalt - 59						-1
C			1		0		1	
D			27			66		+1
E				28	30		62	

3. In the table above... (CW 10)

- Which letters represent isotopes?
- Which letters represent cations?
- Which letters represent anions?

4. In an isotope, the _____ is always the same, but the _____ varies. (CW 11)
5. How would you find the number of neutrons for the isotope below? The number of protons? (CW 10)



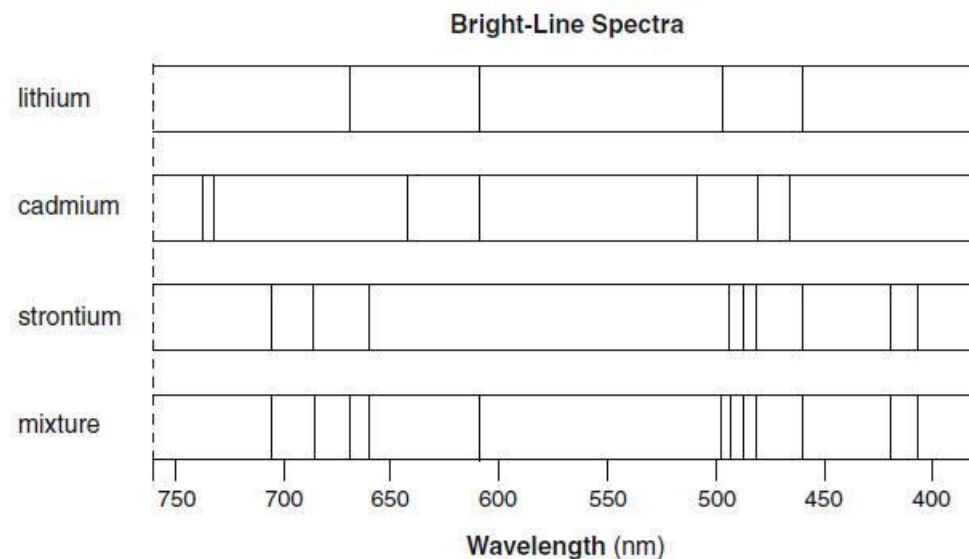
6. Calculate the average atomic mass of bromine. One isotope of bromine has an atomic mass of 78.92 amu and a relative abundance of 50.69%. The other major isotope of bromine has an atomic mass of 80.92 amu and a relative abundance of 49.31%. (CW 11)

7. Find the weighted average mass of the isotopes in the table below. (CW 11)

Isotope	% Abundance	Mass (amu)
A	76.8	46.9
B	13.5	48.2
C	9.7	51.3

Atoms and Light

8. What elements are found in the mixture below?(CW 6)



9. On the bright line spectrum above, lithium absorbs light at four wavelengths. (CW 6)
- Using the scale provided, determine the wavelengths of the four emission lines to the correct precision.
 - Rank the wavelengths from least to most energy.
 - Why does lithium emit light at the given wavelengths? Explain in terms of electron transitions.
 - How does this relate to the flame test?
 - Convert the biggest and smallest wavelengths into meters. Write your answer in scientific notation.

Light and Waves

10. Explain what red shift and blue shift are and what they tell us about distant galaxies.
(CW 2)

11. Define the variables in the following equations: (CW 3)

a. $v = f\lambda$

b. $E = hf$

12. As the wavelength of electromagnetic radiation increases... (CW 3)

a. The frequency _____.

b. The energy _____.

13. The wavelength of some electromagnetic radiation was measured to be 3.50×10^{-7} meters long. (CW 3)

a. Calculate its energy.

b. Calculate its frequency.

c. To what region of the electromagnetic spectrum does it belong?