

Atomic Theory Study Guide

1. Complete the following table:

Element	Symbol	Atomic #	Mass #	# of protons	# of electrons	# of neutrons
		45				58
Mercury			201			
				17		18

2. Complete the following table:

Isotope	Symbol	Atomic #	Mass #	# of protons	# of electrons	# of neutrons
selenium-79	^{79}Se					
		37				48
	^{107}Pd					

3. Complete the following table:

element name	symbol & charge of ion formed	ion name	cation (+) or anion (-)?	Metal or nonmetal?
potassium		potassium ion		
sulfur		sulfide ion		
	Br^-	bromide ion		

4. True/False: Write the letter T or F in the space provided by each statement.

_____ Atoms of the same element have the same number of neutrons in the nucleus.

_____ The mass of a proton is approximately equal to the mass of a neutron.

_____ Atoms of the same element have the same number of protons in the nucleus.

_____ Atoms of elements are electrically neutral.

_____ The mass of an electron is approximately equal to the mass of a neutron.

_____ When an electron is excited it travels to a higher energy level. When it falls back down it releases a proton.

5. State the group number(s) and one fact about each of the following families of elements:

- a.) alkali metals
- b.) alkaline earth metals
- c.) transition metals
- d.) halogens
- e.) noble gases

6. Explain the contribution to the scientific community made by each individual listed below:

- a.) Democritus
- b.) Thompson
- c.) Rutherford
- d.) Bohr
- e.) Mendeleev

7. Evaluate each part of Dalton's Atomic Theory listed below. State which points are still completely supported by the scientific community today, and explain why some of the points were disproved or clarified.

- a.) All elements are made of tiny atoms.
- b.) Atoms cannot be subdivided.
- c.) Atoms of the same element are exactly alike.
- d.) Atoms of different elements can join to form molecules.