

Pre-AP Chemistry/Chemistry
Unit #4--Periodicity

Percent Abundance

1. Use the data below to calculate the average atomic mass for silicon.

Isotope	Mass (a.m.u.)	Percent Abundance (%)
^{28}Si	27.977	92.21
^{29}Si	28.976	4.70
^{30}Si	29.974	3.09

2. What is the average atomic mass for the element iron based on the isotopes given for the element?

Isotope	mass (amu)	Abundance
Iron-54	53.94	5.90%
Iron-56	55.93	91.72%
Iron-57	56.94	2.10%
Iron-58	57.93	0.280%

3. Use the data below to calculate the weighted average atomic mass for titanium.

Isotope	Mass (a.m.u.)	Percent Abundance (%)
^{46}Ti	45.9526	7.93
^{47}Ti	46.9518	7.28
^{48}Ti	47.9480	73.94
^{49}Ti	48.9479	5.51
^{50}Ti	49.9448	5.34

4. A naturally occurring element consists of three isotopes. The data on the isotopes:

Isotope #1:	46.972 amu	69.472%
Isotope #2:	48.961 amu	21.667%
Isotope #3:	49.954 amu	8.8610%

What is the average atomic mass of this naturally occurring element?

What is the name and symbol of the element based on the average atomic mass?

5. Please calculate the average atomic mass for the element, silver.

Isotope	Mass (amu)	Abundance
Silver-107	106.90509	51.86%
Silver-109	108.90470	48.14%

Isotopes

6. Chromium has an atomic number of 24 and a mass number of 52. Write the number of protons, electrons, neutrons, and the four forms of the isotope.
7. An element has an atomic number of 10 and a mass number of 20. Please write down the number of neutrons, protons, electrons, mass number, Z number, symbol of element, name of element, and the other ways to write an isotope.

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8. How many protons and how many neutrons are there in the isotope ${}_{79}^{197}\text{Au}$?
9. The isotope, ${}_{84}^{213}\text{Po}$, is present. Please write down the number of neutrons, protons, electrons, mass number, Z number, symbol of element, name of element, and the other ways to write an isotope.
10. Copy this table and fill in the blanks for elements and their isotopes

	Element #1	Element #2	Element #3
# neutrons		64	
# protons			
# electrons		48	
A (mass number)	52		
Z (atomic number)			
Symbol	Cr		
Name of Element			
Isotope Form #1			
Isotope Form #2			
Isotope Form #3			Pb-207
Isotope Form #4			