

KEY

Periodic Table Unit Review

- Consider the neutral atom with 53 protons and 74 neutrons to answer the following questions.
 - What is the atomic number? 53
 - What is the mass number? $53 + 74 = 127$
 - Is the element's position in a modern periodic table determined by its atomic number or its atomic mass? *atomic number*
- Consider an element whose outermost electron configuration is $3d^{10} 4s^2 4p^x$.
 - To which period does the element belong? 4
 - If it is a halogen, what is the value of x ? 5
 - The group number will equal $(10 + 2 + x)$. True or False?
- In which block are metalloids found, s, p, d, or f? P
 - In which block are the hardest, densest metals found, s, p, or d? d
- Name the most chemically active halogen. F
 - Write its longhand configuration. $1s^2 2s^2 2p^5$
 - Write its noble gas configuration $[He] 2s^2 2p^5$
 - Draw its orbital diagram notation.
$$\begin{array}{ccc} \uparrow\downarrow & \uparrow\downarrow & \uparrow\downarrow \uparrow\downarrow \uparrow \\ 1s & 2s & 2p \end{array}$$
- Which element has a larger radius, Al or In? In
 - Which has the larger radius, Se or Ca? Ca
 - Which has a larger radius, Ca or Ca^{2+} ? Ca
 - Which class has greater ionization energy, metals or nonmetals? *nonmetals*
 - Which has the greater ionization energy, As or Cl? Cl
 - An element with a large ionization energy is most likely to form a : positive ion, negative ion?
 - In general, which has a stronger electron attraction, a large atom or small atom?
 - Which has greater electronegativity, O or Se? O
 - In the covalent bond between Se and O, to which atom is the electron pair more closely drawn? O
 - How many valence electrons are there in a neutral atom of Se? 6
- Identify all of the following ions that are not isoelectric to a noble gas
 K^+ S^{2-} Ca^+ I^- Al^{3+} Zn^{2+}
- Give the noble gas configuration of the following elements:
 - Br $[Ar] 4s^2 3d^{10} 4p^5$
 - Br^- $[Ar] 4s^2 3d^{10} 4p^6$
 - the element in Group 13 (3A) period 5 In 49 $[Kr] 5s^2 4d^{10} 5p^1$
 - the lanthanide with the smallest atomic number Ce 58 $[Xe] 6s^2 4f^1$
- What element is in the 3rd period, group 5A? *Phosphorus*
- What element is in period 7, group 2A? *Radium*
- What period 5 transition element has an electron configuration that ends in d^3 ? *Nb*