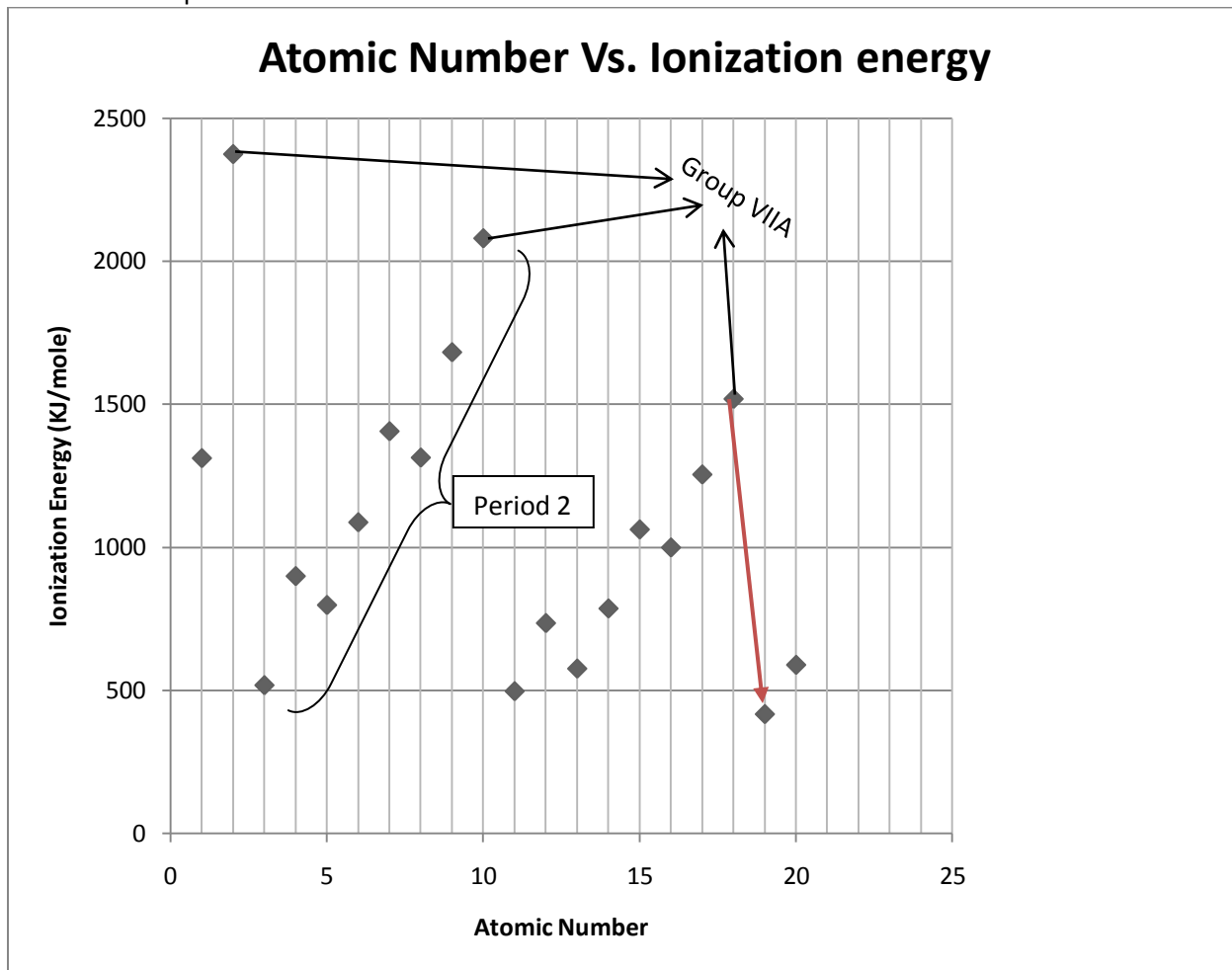


The graph above shows the atomic radius versus the atomic number of the first twenty elements. The atomic number is the number of protons in the nucleus of an atom of an element. The atomic radius is one half of the distance between the nuclei of two atoms of the same element. The atomic radii of elements within the same period are grouped in vertical sections in the graph above (period 3 is just one example). Atomic radii within the same group are in horizontal rows in the graph above (Group IA). As you go across the periodic table in the periods the atomic radius of an element becomes smaller. As you go down the periodic table in the groups the atomic radius gets bigger. The red arrow shows that where the periods change, the atomic radius increases when a new period begins because the atoms of the element become larger.



The graph above shows the atomic number versus the ionization energy of the first twenty elements. The atomic number is the number of protons in the nucleus of an atom of an element. The ionization energy of an electron is the energy required to remove an electron from an atom in its gaseous state. The red arrow shows how the ionization energy decreases as the periods change because as a new group of elements start the ionization energy required for the new element is the lowest in the group. However, as you go across the periodic table in a period, the ionization energy generally increases as show in the above graph (Period 2). As you go down the periodic table in groups, the ionization energy decreases drastically (Group VIIA).