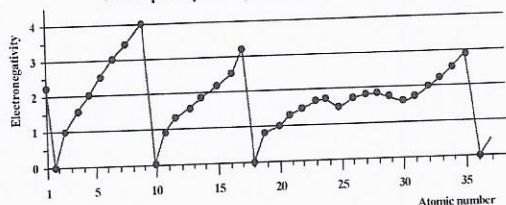


Trend worksheet

1. Why does He have the highest ionization energy and francium the lowest?

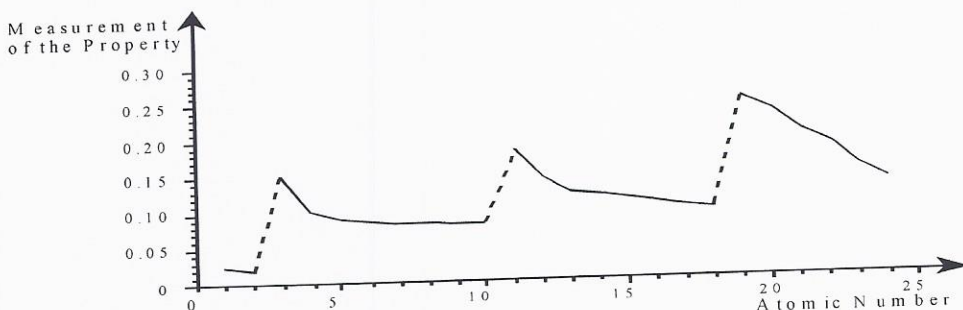
He: least orbits + each are full = ↑ attraction.
 Fr: most orbits + least v_e so = ↓ attraction.

2. The graph below shows the electronegativity of some elements. Describe: the progression of this property for elements within the 3rd period on the periodic table and explain why it occurs.



Starts low, as go across electro... ↑. It increases because have more v_e w/ each element = more attraction.

3. The following graph shows the measurement of a property of certain elements as a function of their atomic number.



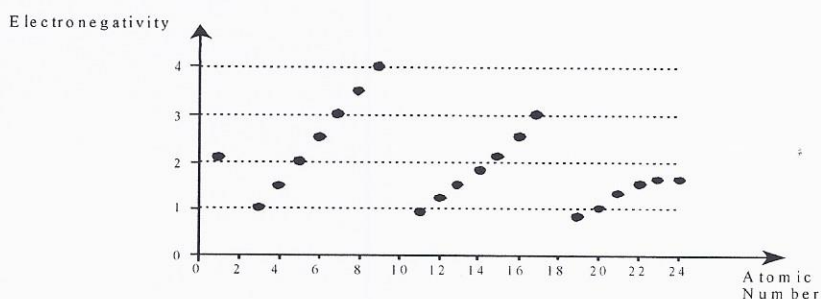
According to this graph, which of the following statements is TRUE?

- A) The measurement of this property is always greater at the end of a period than at the beginning of a period.
- B) The measurement of this property decreases and then increases across a period.
- C) The measurement of this property decreases from left to right across a period.
- D) The measurement of this property is greater for the last element of Period 2 than for the first element of Period 3.

4. What general observation can be made regarding the atomic radius across a row or a period of the Periodic Table?

- A) It increases with increasing atomic number.
- B) It decreases with increasing atomic number.
- C) It remains constant with increasing atomic number.
- D) It varies in an irregular fashion, with no relation to the atomic number.

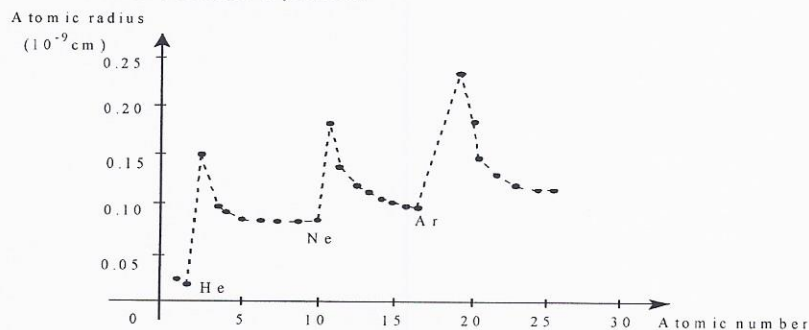
5. The following graph shows the change in the electronegativity of certain elements as a function of their atomic numbers.



According to this graph, which of the following statements is TRUE?

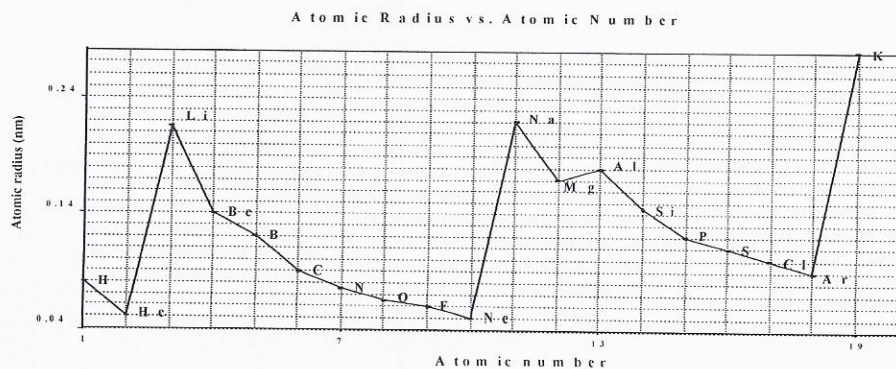
- A) In Period 2, electronegativity increases as the atomic number increases.
- B) In Period 2, electronegativity decreases as the atomic number increases.
- C) In Period 2, electronegativity does not change as the atomic number increases.
- D) In Period 2, electronegativity decreases and then increases as the atomic number increases.

6. According to this graph, which statement best describes the change in the atomic radius as you move across a period?



- A) The size of the atomic radius increases as you move from left to right across a period.
- B) The size of the atomic radius decreases then increases across a period.
- C) The size of the atomic radius decreases as you move from left to right across a period.
- D) The size of the atomic radius increases and then decreases across a period.

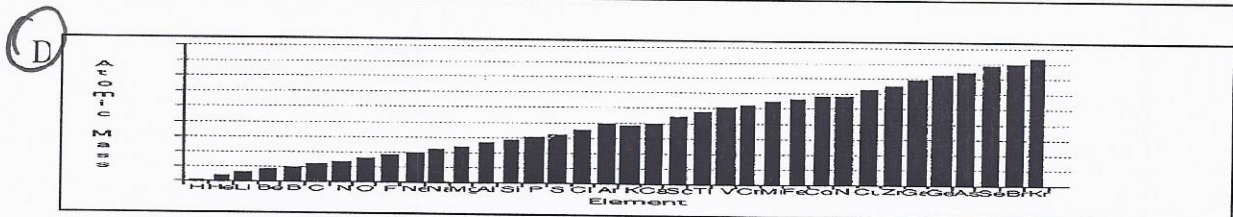
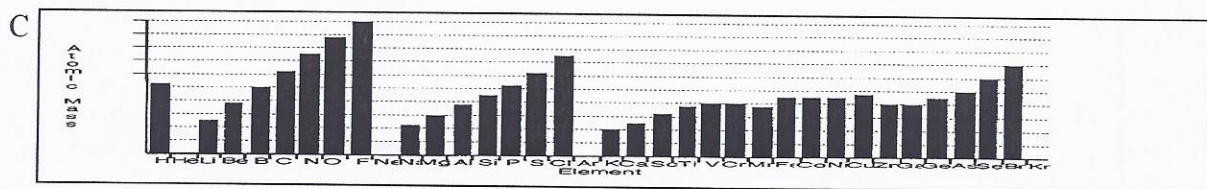
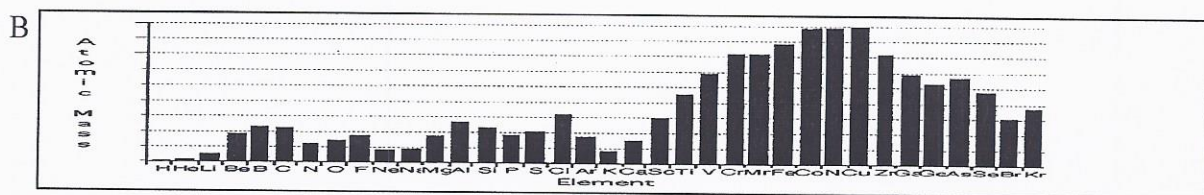
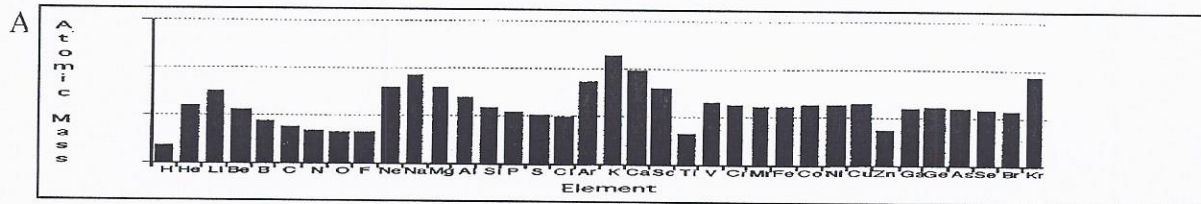
7. Consider the graph below.



Based on this graph, which of the following statements is correct?

- A) The atomic radius increases across the period and decreases down a group.
- B) The atomic radius decreases across the period and increases down a group.**
- C) The atomic radius increases across the period and increases down a group.
- D) The atomic radius decreases across the period and decreases down a group.

8. Which one of the following graphs represents the progression of the atomic masses in the periodic table?

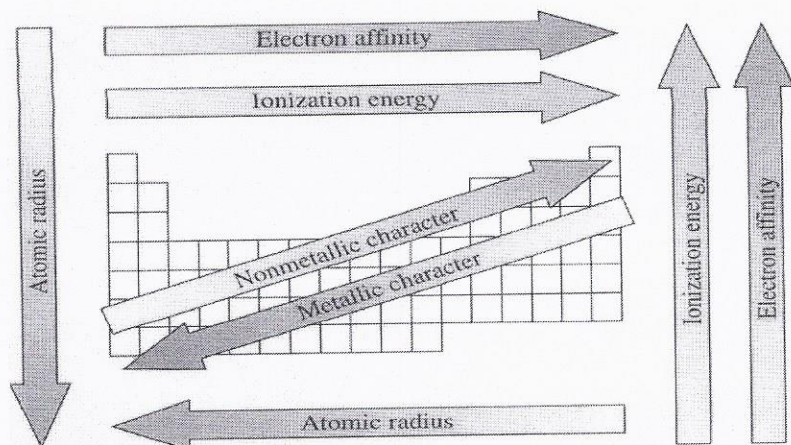


9. Which of the following statements are true for the atomic radius within the same period?

- I) Moving from left to right across a given period, there is an increase in the number of electrons, protons and neutrons, and thus the atomic radius increases.
- II) The atomic radius decreases with the increasing atomic number across a given period.
- III) The atomic radius is independent from the type of atom within a given period.
- IV) Moving from left to right across a given period, there is an increase in the number of protons and electrons. Therefore the electric forces between nucleus and shell increases, thus reducing the atomic size.

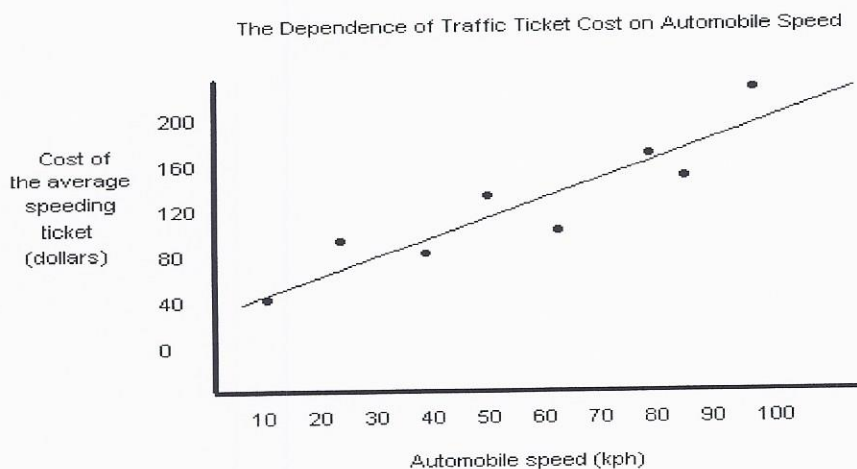
- A) I and III
- B) I, II and IV
- C) II and III
- D) II and IV**

10. Using the table below, determine which statements are correct.



- a. Magnesium has a larger atomic radius than sodium and beryllium.
- b. Helium has the lowest ionization capacity and francium has the highest.
- c. Sulfur has a much higher electron affinity than calcium.
- d. A non-metal atom will be smaller than a metal atom.
- e. Elements with three energy levels are bigger than elements with five energy levels.

11. Explain why the graph below does not represent a trend.



There is no pattern.