

1. Moving right and up toward Helium the ionization energy INCREASES.
 ↳ HARD TO STEAL FROM
2. Moving left and down toward Francium the ionization energy DECREASES.
 ↳ EASY TO STEAL FROM

3. In each of the following pairs which has a greater ionization energy?

- a) Cl or Sn b) Li or K c) O or Se ↳ ENERGY NEEDED TO STEAL ELECTRON FROM ATOM
- d) Pb or Au e) Al or Ga f) He or F

4. Moving right and up toward Fluorine the electron affinity INCREASES.
 ↳ ABILITY TO STEAL ELECTRON
5. Moving left and down toward Francium the electron affinity DECREASES.

6. Why do the electron affinities increase moving right and up toward Fluorine?

MOVING IN THIS DIRECTION, ATOMS WANT TO GAIN ELECTRONS. ATOMS ALSO GET SMALLER, IN THIS DIRECTION, SO IT IS EASIER FOR THEM TO GAIN ELECTRONS AS THEIR OUTER SHELL IS CLOSEST TO THE NUCLEUS.

7. In each of the following pairs which has a greater electron affinity?

- a) Al or B b) Mg or Na c) B or Tl
- d) K or Ca e) F or N d) Br or Cl

8. In each of the following pairs which has a larger radius?

- a) V or Nb b) Cl⁻ or Br⁻ c) Rn or Fr
- d) Cs or At e) Cs⁺ or At⁻ f) Co or P

9. In each of the following pairs which has the greatest reactivity.

- a) Al or Ca b) Li or Na c) Cs or Pd
- d) Ca or K e) F or Br f) C or Br

10. In each of the following groups which has the greatest electronegativity difference.

- | | | |
|-------------------------|---------------------------|---------------------------|
| 1.6 ^{0.5} 2.1 | 4.0 ^{3.3} 0.7 | 3.5 ^{2.5} 1.0 |
| a) Cr vs. P | b) <u>F</u> vs. <u>Fr</u> | c) <u>O</u> vs. <u>Li</u> |
| or | or | or |
| <u>Cl</u> vs. <u>Na</u> | Fr vs. Br | S vs. Zn |
| 3.0 0.9 | 6.7 2.8 | 2.5 1.6 |
| <u>2.1</u> | <u>2.1</u> | <u>0.9</u> |