

The Bohr Model of the Hydrogen Atom!!

1. What is the wavelength of light emitted when an electron moves from energy level 6 (n=6) to energy level 2 (n=2)?  
410 nm  
a) What is the color of the light?  
violet

2. What type of light, wavelength, frequency & energy is emitted when an electron moves from n=5 to n=2?  
434 nm  
→ visible light

3. What type of light, wavelength, frequency & energy is emitted when an electron moves from n=4 to n=3?  
1875 nm  
IR

4. When is light emitted? when high energy level → lower energy level

5. When is light absorbed? when low energy level → high energy level

Section 2: Periodic Table Trends and Periodicity!!

The atomic radius decreases across a period and increases a group.

Ionization energy increases across a period and decreases down a group.

Electronegativity increases across a period and decreases down a group.

Identify the lowest EN: Li K Rb Cs

Identify the highest AR (biggest size): Ca Ge Se Kr

Identify the lowest IE: Na Ga Se Br lower energy level than Na

The element that is an alkali metal in the 2<sup>nd</sup> period: ~~Li~~ Li

What is the group name of elements in the 17<sup>th</sup> group? halogens

Identify the element in the noble gas group and in the 1<sup>st</sup> period: He

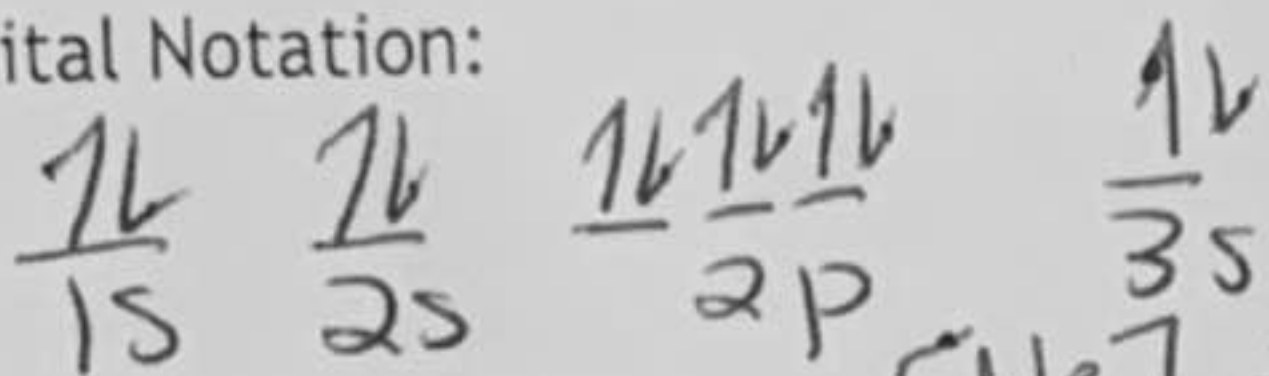


Section 3: Electron configuration, Noble Gas Notation & Orbital Notation

Magnesium

E- Config:  $1s^2 2s^2 2p^6 3s^2$

Orbital Notation:



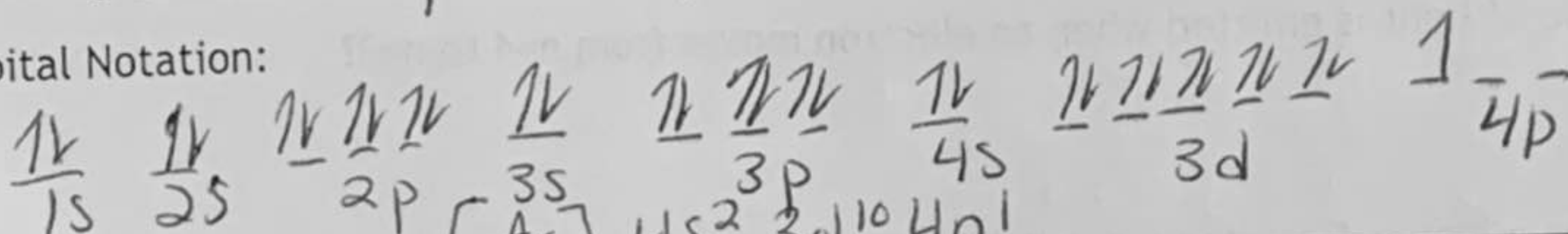
Nobel Gas Notation:  $[Ne] 3s^2$

Valence e-: 2 (# of electrons in highest level)

Gallium

E- Config:  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^1$

Orbital Notation:



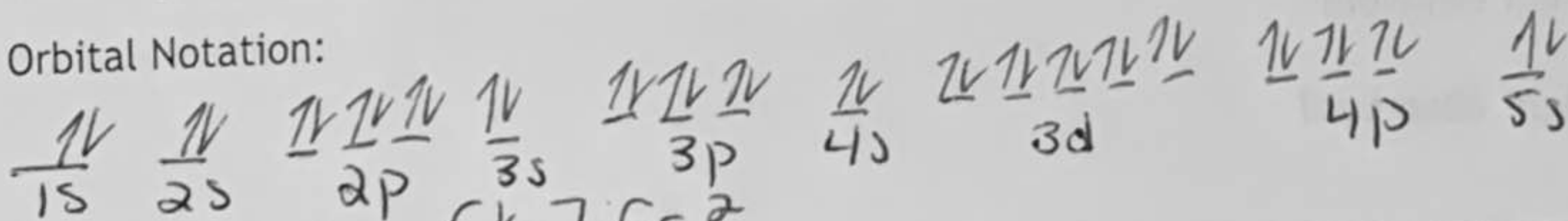
Nobel Gas Notation:  $[Ar] 4s^2 3d^{10} 4p^1$

Valence e-: 3

Strontium

E- Config:  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2$

Orbital Notation:



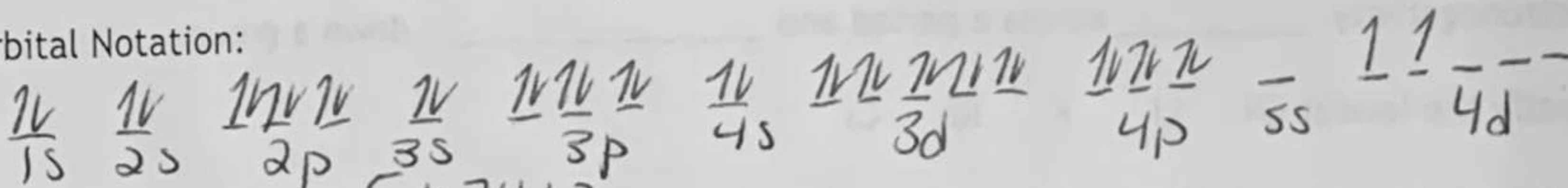
Nobel Gas Notation:  $[Kr] 5s^2$

Valence e-: 2

Zirconium +2

E- Config:  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 4d^2$

Orbital Notation:



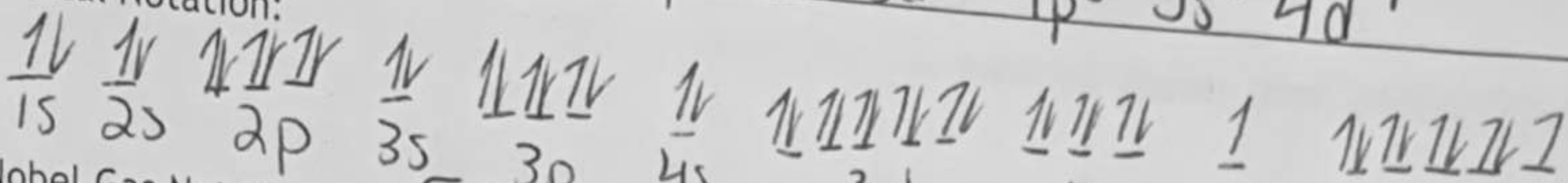
Nobel Gas Notation:  $[Kr] 4d^2$

Valence e-: / ← lost valence electrons when became ion



E- Config:  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^1 4d^9$

Orbital Notation:



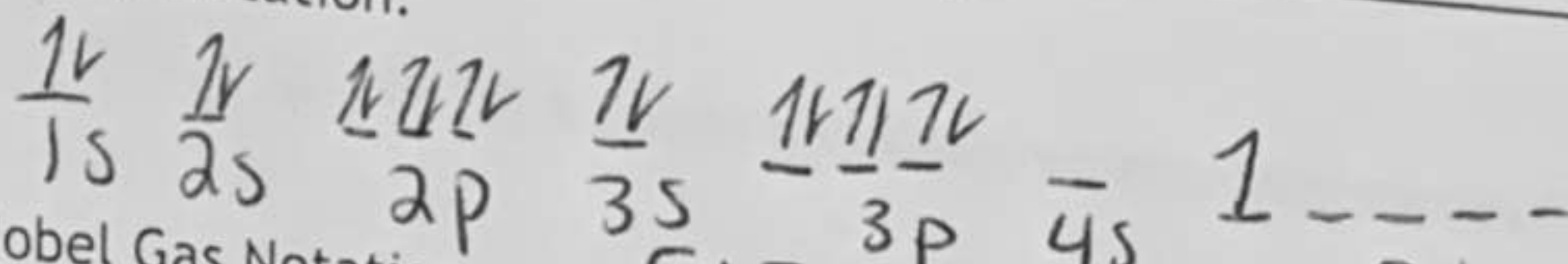
Nobel Gas Notation:  $[Kr] 5s^1 4d^9$

Valence e-: 1

Titanium +3

E- Config:  $1s^2 2s^2 2p^6 3s^2 3p^6 3d^1$

Orbital Notation:



Nobel Gas Notation:  $[Ar] 3d^1$

Valence e-: ~~2~~ lost valence electron when became ion

Section 7. Label all parts of periodic table (alkaline metals, alkali earth metals, halogens, noble gases, transition metals, inner transition metals, metals, metalloids, nonmetals, group numbers, period numbers, s/p/d/f blocks,..)

Periodic Table of the Elements

look this up :)