

Exercise 4.3c(H)

Electron Cloud Review

Name: _____

Date: _____ Per: _____

1. Draw the electromagnetic spectrum in order of increasing frequency. Draw arrows indicating the direction frequency and wavelength increase.

2. Wavelength, represented by the symbol _____, is defined as _____
 _____. It uses units of _____ and is _____ related to frequency by the
 formula _____. Frequency is represented by the symbol _____, and defined as _____
 _____. Three ways of showing units for
 frequency are _____, _____, or _____.
 Planck's formula _____ relates _____ & _____. Energy and
 wavelength are related by the formula _____ where Planck's constant is represented by the
 symbol _____ and has the value _____.
 When electrons gain energy they _____. Visible light and other electromagnetic
 radiation is emitted when _____.

3. Complete the following table for the *s*, *p*, *d*, and *f* sublevels.

Sublevel	Shape (Description)	Shape (Drawing)	Number of Orbitals	Maximum Electrons	Found in Which Energy Levels
<i>s</i>					
<i>p</i>					
<i>d</i>					
<i>f</i>					

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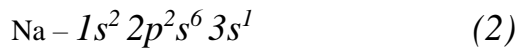
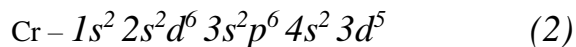
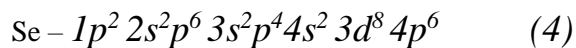
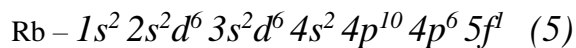
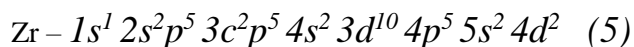
DIRECTIONS: Draw (around each arrow) a circle around violations of the Aufbau principle, a square around violations of Hund's Rule, and a triangle around violations of the Pauli Exclusion Principle.

1s	2s	2p			3s	3p			4s	3d					4p			5s	4d									
↑↓	↑↓	↑↑	↑↓	↑↓	↑↓	↑↑	↑	↑↓	↑	↑↓	↑	↑	↑	↑														

1s	2s	2p			3s	3p			4s	3d					4p			5s	4d									
↑↓	↑↓	↑↓	↑↓	↑	↑↓	↑↓	↑↓	↑↓	↑	↑↓	↑↓	↑↑	↑↑															

1s	2s	2p			3s	3p			4s	3d					4p			5s	4d									
↑↓	↑↑↑	↑↓	↑↓	↑↓	↑↑	↑↓	↑↑	↑↓	↑	↑	↑	↑																

DIRECTIONS: Draw a circle around errors in the following electron configurations. The number of errors is shown in parentheses.



DIRECTIONS: Write a box orbital diagram, Bohr model, Lewis dot diagram and electron configuration for each of the elements below.

Mn**S****Ca**