

## alternate electrons (Homework)

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1.

How many valence electrons are found in an atom of Cl?

2.

How are the 3s and 4s sublevels of an atom different?

3.

What orbital characteristic is indicated by the magnetic quantum number?

4.

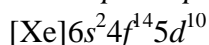
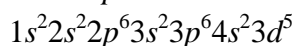
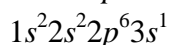
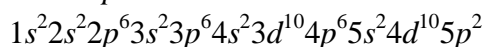
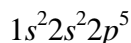
The shape of an orbital is indicated by what quantum number?

5.

How many orbitals are contained in the 4p sublevel?

6.

Enter the symbol for the element represented by each of the following ground state configurations for the neutral atom.



7.

Which of the following is a correct orbital notation for a ground state silicon atom? (Select all that apply.)

8.

What is the correct arrangement of the electron spins in a  $3d^4$  sublevel? (Select all that apply.)

9.

In which group of the Periodic Table do the elements have an electron configuration which ends with the following sublevel notations? Type your answers using the group numbers 1 - 18.



$p^1$   
 $p^4$

10.

What is the electron configuration of each of the following elements? Use the noble gas abbreviation of the configuration. Enter the sublevels in the order in which they are filled. For example, type your answer using the format [Ar]4s2 3d10 4p2 for [Ar]4s<sup>2</sup>3d<sup>10</sup>4p<sup>2</sup>.

Li

S

Ca

Co

I

11.

What is the electron configuration of each of the following elements? Use the noble gas abbreviation of the configuration. Enter the sublevels in the order in which they are filled. For example, type your answer using the format [Ar]4s2 3d10 4p2 for [Ar]4s<sup>2</sup>3d<sup>10</sup>4p<sup>2</sup>.

Ga

In

Sc

Na

Cs

12.

How many unpaired electrons are present in each of the following elements? Enter your answers as numerals.

Al

V

K

As

Ba

13.

Identify the elements having the electron configurations below. Write the symbol for the element. You may use the Periodic Table.

[Ne]3s<sup>2</sup>3p<sup>2</sup>

[Ar]4s<sup>2</sup>3d<sup>8</sup>

1s<sup>2</sup>2s<sup>2</sup>2p<sup>6</sup>3s<sup>2</sup>3p<sup>6</sup>4s<sup>2</sup>3d<sup>2</sup>

1s<sup>2</sup>2s<sup>2</sup>2p<sup>6</sup>3s<sup>2</sup>3p<sup>6</sup>4s<sup>2</sup>3d<sup>10</sup>4p<sup>6</sup>