

Arrow Diagrams + Electron configurations

Period _____

1) Element: **Mg** # of electrons= _____

Electron Config: _____

5s _____
 4p _____
 3d _____
 4s _____
 3p _____
 3s _____
 2p _____
 2s _____
 1s _____

2) Element: **Ar** # of electrons= _____

Electron Config: _____

5s _____
 4p _____
 3d _____
 4s _____
 3p _____
 3s _____
 2p _____
 2s _____
 1s _____

3) Element: **S** # of electrons= _____

Electron Config: _____

5s _____
 4p _____
 3d _____
 4s _____
 3p _____
 3s _____
 2p _____
 2s _____
 1s _____

4) Element: **Al** # of electrons= _____

Electron Config: _____

5s _____
 4p _____
 3d _____
 4s _____
 3p _____
 3s _____
 2p _____
 2s _____
 1s _____

5) Element: **Cr** # of electrons= _____

Electron Config: _____

5s _____
 4p _____
 3d _____
 4s _____
 3p _____
 3s _____
 2p _____
 2s _____
 1s _____

6) Element: **Ca** # of electrons= _____

Electron Config: _____

5s _____
 4p _____
 3d _____
 4s _____
 3p _____
 3s _____
 2p _____
 2s _____
 1s _____

7) Element: **Cl** # of electrons= _____

Electron Config: _____

5s _____
 4p _____
 3d _____
 4s _____
 3p _____
 3s _____
 2p _____
 2s _____
 1s _____

8) Element: **Ge** # of electrons= _____

Electron Config: _____

5s _____
 4p _____
 3d _____
 4s _____
 3p _____
 3s _____
 2p _____
 2s _____
 1s _____

- 9) For all of the elements above, indicate the number of *unpaired* electrons in the element.
- 10) State the rules for the number of *sublevels* and the number of *orbitals* allowed in any energy level n .
- 11) How many *s* orbitals are there in each principal (main) energy level?
a) 1 b) 2 c) 3 d) 4 e) depends on the atom
- 12) How many orbitals are there in the $n=6$ principal energy level?
a) 2 b) 6 c) 12 d) 36 e) 72
- 13) What is the maximum number of electrons that the $n=6$ principal energy level can hold?
a) 2 b) 6 c) 12 d) 36 e) 72
- 14) How many *p* orbitals are there in each principal energy level $n \geq 2$?
a) 1 b) 2 c) 3 d) 5 e) 7
- 15) How many orbitals are there in the $n=2$ principal energy level?
a) 2 b) 4 c) 9 d) 16 e) 25
- 16) What is the maximum number of electrons can the $n=3$ principal energy level can hold?
a) 2 b) 8 c) 18 d) 32 e) 72
- 17) If a principal energy level contains only *s*, *p*, *d*, *f* and *g* orbitals, which energy level is it?
a) $n=1$ b) $n=2$ c) $n=3$ d) $n=4$ e) $n=5$ f) $n=6$