

Arrow Diagrams + Electron configurations

Period _____

<p>1) Element: Mg # of electrons= <u>12</u></p> <p>Electron Config: <u>$1s^2 2s^2 2p^6 3s^1$</u></p> <p>0 unpaired e⁻</p>	<p>2) Element: Ar # of electrons= <u>18</u></p> <p>Electron Config: <u>$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$</u></p> <p>0 unpaired e⁻</p>
<p>3) Element: S # of electrons= <u>16</u></p> <p>Electron Config: <u>$1s^2 2s^2 2p^6 3s^2 3p^4$</u></p> <p>2 unpaired e⁻</p>	<p>4) Element: Al # of electrons= <u>13</u></p> <p>Electron Config: <u>$1s^2 2s^2 2p^6 3s^2 3p^1$</u></p> <p>1 unpaired e⁻</p>
<p>5) Element: Cr # of electrons= <u>24</u></p> <p>Electron Config: <u>$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^4$</u></p> <p>4 unpaired e⁻</p>	<p>6) Element: Ca # of electrons= <u>20</u></p> <p>Electron Config: <u>$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$</u></p> <p>0 unpaired e⁻</p>
<p>7) Element: Cl # of electrons= <u>17</u></p> <p>Electron Config: <u>$1s^2 2s^2 2p^6 3s^2 3p^5$</u></p> <p>1 unpaired e⁻</p>	<p>8) Element: Ge # of electrons= <u>32</u></p> <p>Electron Config: <u>$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^2$</u></p> <p>2 unpaired e⁻</p>

- 9) For all of the elements above, indicate the number of *unpaired* electrons in the element.
Shown on electron diagrams above
- 10) State the rules for the number of *sublevels* and the number of *orbitals* allowed in any energy level n .
There are n sublevels and n^2 orbitals (each holding up to 2 electrons) 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) $n=6$