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| **Review #2**  CλeMis+ry: http://genest.weebly.com  Stop in for help every day at lunch and Tues,&Thurs after school! |  | Name\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_ |

(Review #1 was the puzzle pieces sheet.)

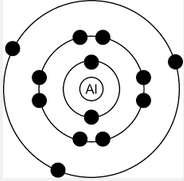
1. Write a balanced equation for S2- anion losing two electrons:

\_\_\_\_ \_\_\_\_ + \_\_\_\_

1. Write a balanced equation for the only stable calcium ion gaining two electrons:

\_\_\_\_ + \_\_\_\_ \_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| In the after box redraw what this atom will look like after losing one electron.  The charge before \_\_\_\_\_\_\_\_  The charge after \_\_\_\_\_\_\_\_\_\_  It became a (anion / cation ) | Before  A description... |  | After | HighLow Letter symbol for the after atom? |
| In the after box redraw what this atom will look like after gaining one electron.  The charge before \_\_\_\_\_\_\_\_  The charge after \_\_\_\_\_\_\_\_\_\_ | Before  A description... |  | After | HighLow Letter symbol for the after atom? |

1. Draw the Bohr model atom  for each of the following:

|  |  |  |
| --- | --- | --- |
| 1s22s22p1 | a +2 cation of magnesium |  |
|  |  |  |

1. With the help of your Rewrite [Ar]4s23d104p4 in the longer version of electron configuration (1s2 2s2 etcetera)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Draw the Bohr diagram  for the following three atoms. Label how many protons each has in its nucleus.   |  |  |  | | --- | --- | --- | | neutral helium | neutral lithium | neutral neon | |  |  |  |   http://chemwiki.ucdavis.edu/@api/deki/files/1193/Ionization_Energy_Graph_IK.png?size=bestfit&width=650&height=350&revision=1 |

***Use the information in the box above to answer the following seven questions.***

1. Going from lithium to beryllium removing a valence electron becomes
   1. easier
   2. more difficult
   3. there’s no difference
2. Explain what structural feature causes element 2 to be harder to ionize than element 3.
3. Explain what structural feature causes element 4 to be harder to ionize than element 3.
4. Circle the element in each pair with a greater radius
   1. Al or Cl
   2. K or Ca
   3. H or He
5. Explain what structural feature is the cause of the difference in radius in each pair above?
6. Circle the element in each pair with a greater radius
   1. N or As
   2. Cs or K
   3. Ar or Xe
7. Explain what structural feature is the cause of the difference in radius in each pair above?

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| 1. for a NEUTRAL atom with the following electron configuration: |
|  |
| Tell how many e- are in each energy level  1st: 2nd: 3rd: 4th: 5th:  This atom has \_\_\_\_\_\_\_\_ valence e-  therefore it is (stable / unstable )  Write a Lewis dot diagram (Letter and dots) |

***Write the last name of each chemist next to the description***

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ was astonished to find that a ‘living substance’ (urea) can form from nonliving substances (cyanic acid and ammonia).
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Wrote a textbook to help his students memorize the elements more easily.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Invented the spectroscope. Discovered that the sun contains sodium.

1. When neutral changes into Rb+ ion, the numbers of some particle(s) change.
2.  has \_\_\_\_\_\_\_ protons \_\_\_\_\_\_\_ electrons \_\_\_\_\_\_\_ neutrons
3. Rb+ ion has \_\_\_\_\_\_\_ protons \_\_\_\_\_\_\_ electrons \_\_\_\_\_\_\_ neutrons

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| 1. for a NEUTRAL atom with the following electron configuration: |
| 1s22s22p63s23p64s23d104p65s24d105p3 |
| Tell how many e- are in each energy level  1st: 2nd: 3rd: 4th: 5th:  This atom has \_\_\_\_\_\_\_\_ valence e-  therefore it is (stable / unstable )  Write a Lewis dot diagram (Letter and dots) |

1. For an atom with 8 electrons, 10 protons, and 12 neutrons,

|  |  |  |  |
| --- | --- | --- | --- |
| Draw the Bohr orbital | Write the Lewis dot abbreviation | Write the atom symbol with highLow numbers | Does this atom have a stable valence orbital? |

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| 1. for a NEUTRAL atom with the following electron configuration: |
| 1s22s22p63s23p64s23d5 |
| Tell how many e- are in each energy level  1st: 2nd: 3rd: 4th: 5th:  This atom has \_\_\_\_\_\_\_\_ valence e-  therefore it is (stable / unstable )  Write a Lewis dot diagram (Letter and dots) |

1. How many valence electrons are in each of the following?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1s22s22p63s23p64s23d5 |  | an atom with 24 protons and 19 electrons | a -2 anion of oxygen | a neutral  atom |
| \_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_\_\_ |