

Name: _____

Date: _____

- [3 pt] 1. Who designed the first periodic table? What principle(s) was used to determine where the elements are located (rows and columns)?
- [5 pt] 2. Using Quantum Mechanics explain:
- (a) The "odd" shape of the periodic table?
 - (b) What is the same about each row?
 - (c) What is the same about each column?
- [5 pt] 3. List the elements in the following groups:
- (a) Noble gases
 - (b) Halogens
 - (c) Alkaline earth metals
 - (d) Alkali metals
- [2 pt] 4. In the periodic table, calcium is surrounded by elements 12, 19, 21, and 38. Which of these have physical and chemical properties most resembling calcium? Explain.

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[4 pt] 5. What is a valence electron? Why are they important?

[5 pt] 6. Write the electron configuration for each of the following elements. How many valence electrons do each of the following elements have?

(a) Si 6(a) _____

(b) O 6(b) _____

(c) K 6(c) _____

(d) I 6(d) _____

(e) B 6(e) _____

[5 pt] 7. What outer electron shell configuration do each of the following groups of elements share?

(a) Alkali Metals 7(a) _____

(b) Alkaline Earth Metals 7(b) _____

(c) Halogens 7(c) _____

(d) The column with Co, Rh, Ir, and Mt in it 7(d) _____

(e) The column with B, Al, Ga, In, Tl in it. 7(e) _____

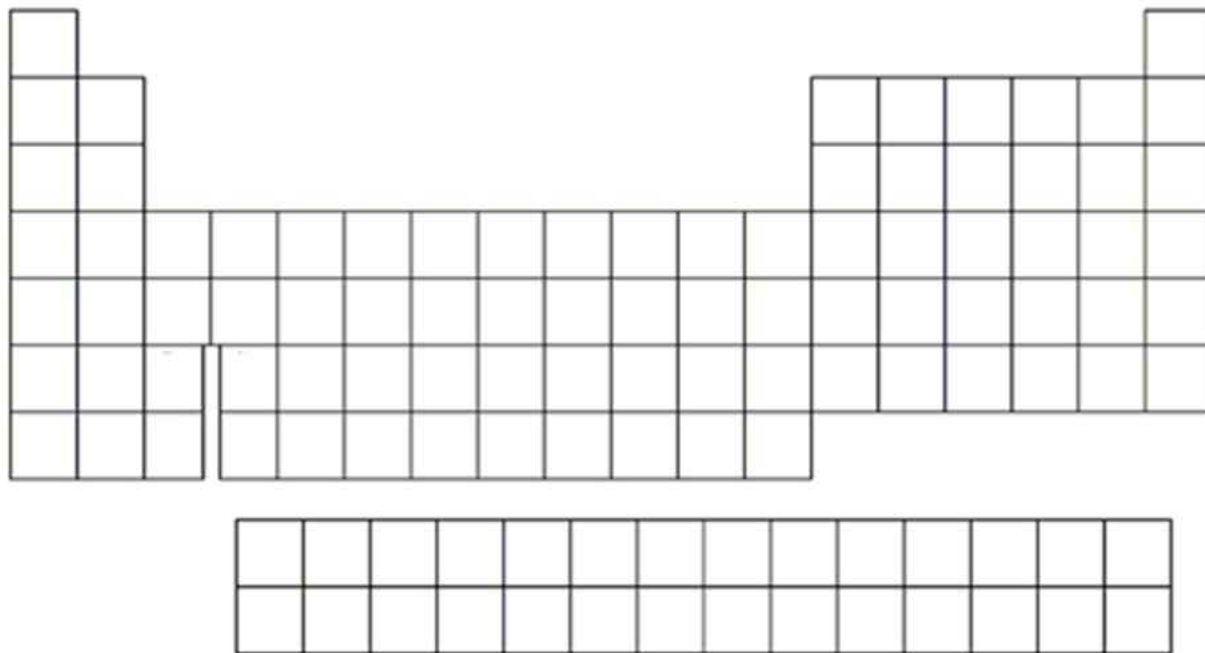
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- [2 pt] 8. The charges of ions (cations and anions) is primarily determined by what rule/goal?
- [4 pt] 9. Draw the reaction showing the formation of a Barium Cation using both normal notation and electron shell configurations.
- [4 pt] 10. Draw the reaction showing the formation of a Sulfur anion using both normal notation and electron shell configurations.
- [6 pt] 11. Draw the reaction showing the formation of the **TWO** most likely Chromium cations using both normal notation and electron shell configurations.

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[5 pt] 12. Label the following on the periodic table:

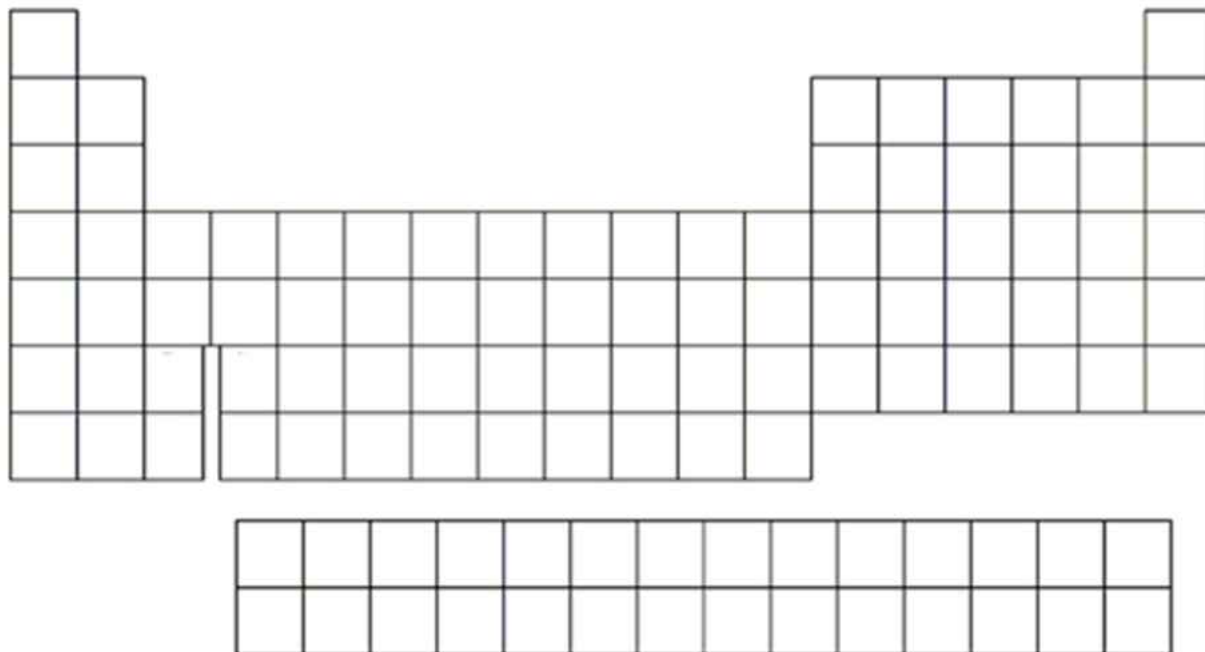
(a) s-block, (b) p-block, (c) d-block, (d) f-block (e) Row numbers (ie 1s, 2s, 2p etc)



A blank periodic table grid consisting of a main body and an f-block. The main body has 7 rows and 18 columns. The first row has 2 columns, the second and third rows have 2 columns, the fourth through sixth rows have 18 columns, and the seventh row has 10 columns. The f-block is a separate 2x14 grid located below the main body.

[10 pt] 13. Label the following on the periodic table below:

(a) Alkali metals (b) Alkaline Earth metals (c) Transition metals (d) Halogens (e) Noble Gases (f) Actinides (h) Lanthinides (i) Pnictogens (j) Chalcogens



A blank periodic table grid identical in structure to the one for question 12, consisting of a main body and an f-block.