

Unit 2 Review Sheet

Name KEY Per _____

1. By what property does the modern periodic table arrange the elements?

atomic number - increases left to right

2. What is a period? How many are there in the periodic table?

a row, there are 7

3. What is a group (also called a family)? How many are there in the periodic table?

a column, there are 18

4. State the number of valence electrons in an atom of:

a. sulfur 6
group 6A

b. calcium 2
group 2A

c. chlorine 7
group 7A

d. arsenic 5
group 5A

5. Give the names and chemical symbols for the elements that correspond to these atomic numbers:

a. 10 Neon, Ne

b. 18 Argon, Ar

c. 36 Kr, Krypton

d. 90 Thorium, Th

6. List, by number, both the period and group of each of these elements.

	Symbol	Period	Group
a. beryllium	Be	2	2A/12
b. iron	Fe	4	8B/8
c. lead	Pb	6	4A/14

7. Which of the following pairs of elements belong to the same period?

- a. Na and Cl b. ~~Na and Li~~ c. ~~Na and Cu~~ d. ~~Na and Ne~~

8. Which of the following pairs of elements belong to the same group?

- a. ~~H and He~~ b. ~~Li and Be~~ c. C and Pb d. ~~Ga and Ge~~

9. What are the Group 1 elements called? alkali metals

10. What are the Group 2 elements called? alkaline earth metals

11. What are the Group 7A/17 elements called? halogens

12. What are the Group 8A/18 elements called? noble gases

13. Within a group, what happens to the atomic radius as you go down the column?

increases

14. Within a period, what happens to the atomic radius as the atomic number increases?

decreases

15. What is electronegativity?

how strongly an atom pulls on electrons

16. What is the general trend of electronegativity as you go down the periodic table?

decreases

17. What is the general trend of electronegativity as you go left to right across the periodic table?

increases

18. List the following atoms in order of increasing electronegativity: O, Al, Ca

Ca < Al < O

19. List the following atoms in order of decreasing electronegativity: Cl, K, Cu

Cl > Cu > K

Determine whether the following compounds are **covalent** or **ionic** and give them their proper names.

Compound	Covalent or Ionic?	Name
20. Ba(NO ₃) ₂	Ionic	barium nitrate
21. CO	covalent	carbon monoxide
22. PCl ₃	Ionic covalent	phosphorus trichloride
23. KI	Ionic	potassium potassium iodide
24. CF ₄	covalent	carbon tetrafluoride
25. MgO	Ionic	magnesium oxide
26. Cu ₂ S	Ionic	copper (I) sulfide 2 × Cu⁺ S⁻²
27. SO ₂	covalent	sulfur dioxide
28. NCl ₃	covalent	nitrogen trichloride
29. XeF	covalent	xenon monofluoride

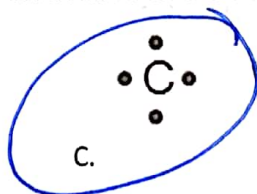
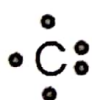
Determine whether the following compounds are **covalent** or **ionic** and give them their **Correct formula**.

Compound	Covalent or Ionic?	Formula
30. copper (II) fluoride	ionic	CuF ₂ Cu⁺² F⁻
31. calcium phosphate	ionic	Ca ₃ (PO ₄) ₂ Ca⁺² PO₄⁻³
32. dioxygen difluoride	covalent	O ₂ F ₂
33. potassium nitrite	ionic	KNO ₂ K⁺ NO₂⁻
34. phosphorus triiodide	covalent	PI ₃
35. magnesium chloride	ionic	MgCl ₂ Mg⁺² Cl⁻
36. dinitrogen tetrachloride	covalent	N ₂ Cl ₄

37. Which of the following pairs of elements COULD react to form an ionic compound? metal + nonmetal

- A. hydrogen and oxygen
 B. sulfur and oxygen
 C. potassium and calcium
 D. fluorine and copper

38. Which of the following is the correct dot notation for the element carbon?



A.

B.

C.

D.

group 4A

39. Identify the charge carried by an aluminum ion. +3

40. Identify the charge carried by a potassium ion. +1

41. Anions have a negative charge because they lose electrons.

42. Cations have a positive charge because they lose electrons.

43. List four properties of ionic compounds:

- i. higher melting point
- ii. brittle

- iii. conduct / electrolyte
- iv. soluble

44. List four properties of covalent (molecular) compounds:

- i. lower melting point
- ii. stronger / not brittle

- iii. non electrolyte
- iv. not soluble

point out PT of ions and elements that do not form ions

	Covalent or Ionic?	Name
N ₂ S	covalent (nonmetals)	dinitrogen monosulfide
CuO	ionic (metal + nonmetal)	copper (II) oxide
BF ₃	covalent (metalloid + nonmetal)	boron trifluoride
NaBr	ionic (metal + nonmetal)	sodium bromide
Li ₂ CO ₃	ionic (metal + poly)	lithium carbonate
P ₂ Br ₄	covalent (nonmetals)	diphosphorus tetrabromide
SiO ₂	covalent (metalloid + nonmetal)	silicon dioxide
Be(OH) ₂	ionic (metal + poly)	beryllium hydroxide

	Covalent or Ionic?	Formula
sodium phosphate	ionic	Na ₃ PO ₄ <small>Na⁺ PO₄³⁻</small>
ammonium chloride	ionic	NH ₄ Cl <small>NH₄⁺ Cl⁻</small>
dinitrogen trioxide	covalent	N ₂ O ₃
lead (IV) oxide	ionic	PbO ₂ <small>Pb²⁺ O²⁻</small>
nitrogen monoxide	covalent	NO
beryllium phosphide	ionic	Be ₃ P ₂ <small>Be²⁺ P³⁻</small>
tetraboron monocarbide	covalent	B ₄ C
oxygen difluoride	covalent	OF ₂

<u>ionic</u> Bonding	<u>covalent</u> Bonding
metal + non-metal	non-metal + non-metal
atoms seek stability	atoms seek stability
atoms give off or accept electrons	atoms share electrons with other atoms
happens between atoms of great difference in electronegativity	happens between atoms of little difference in electronegativity
easily breaks	fragility depends on state
ability to conduct may depend on state	ability to conduct may depend on the atoms
high melting and boiling point	low melting and boiling point

Ionic do not use prefixes

Covalent do use prefixes