

Name:

Date:

Period:

4.3 Tracked Assignment

1. Define covalent bond. How can you tell if a bond will be covalent or ionic?

sharing e^- between nonmetals

covalent all nonmetals $\frac{1}{3}$ or ionic is metal $\frac{2}{3}$ non

2. What is happening to the electrons in a covalent bond? How does that fulfill octet rule?

sharing e^- ; both elements put in a e^-
to get to a full shell when shared

3. Why would a covalent bond form instead of an ionic bond in terms of electronegativity?

covalent have a small dif so they share
 e^- while ionic have a large dif so e^- get transferred

4. What is a molecule?

neutral atoms covalently bonded

5. How many electrons are involved in double bond? How many in triple bond?

4 & 6

6. List the single, double, and triple bonds in order of increasing strength. List the single, double, and triple bonds in order of increasing bond length.

strength - single, double, triple

length - triple, double, single

7. What are the properties of a covalent bond/molecular compound?

low melting $\frac{1}{3}$ boiling

not brittle

don't conduct individually or in solution

insoluble / low solubility

some smell

8. A compound is a red crystalline solid that is brittle and conducts electricity in solution.

Would this compound be classified as ionic or covalent?

ionic

9. Label the following compounds as ionic or covalent:

a. CuCl_2 I

b. C_6H_6 C

c. N_2O_5 C

d. $\text{Ti}(\text{CN})_4$ I

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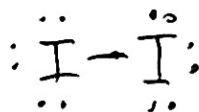
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10. Draw Lewis Structures for the following compounds:

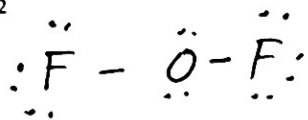
a. I_2

$$2 I \times 7 = 14$$



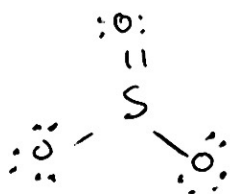
b. OF_2

$$\begin{array}{r} 1 O \times 6 = 6 \\ 2 F \times 7 = 14 \\ \hline 20 \end{array}$$



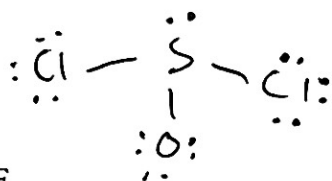
c. SO_3

$$\begin{array}{r} 1 S \times 6 = 6 \\ 3 O \times 6 = 18 \\ \hline 24 \end{array}$$



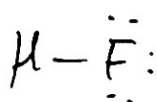
d. $SOCl_2$ (Cl = chlorine)

$$\begin{array}{r} 1 S \times 6 = 6 \\ 1 O \times 6 = 6 \\ 2 Cl \times 7 = 14 \\ \hline 26 \end{array}$$



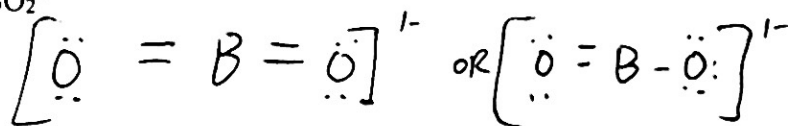
e. HF

$$\begin{array}{r} 1 H \times 1 = 1 \\ 1 F \times 7 = 7 \\ \hline 8 \end{array}$$



f. BO_2^{1-}

$$\begin{array}{r} 1 B \times 3 = 3 \\ 2 O \times 6 = 12 \\ \hline 15 \\ +1 \rightarrow -1 \text{ charge} \\ \hline 16 \end{array}$$



g. GeH_2I_2

$$\begin{array}{r} 1 Ge \times 4 = 4 \\ 2 H \times 1 = 2 \\ 2 I \times 7 = 14 \\ \hline 20 \end{array}$$

