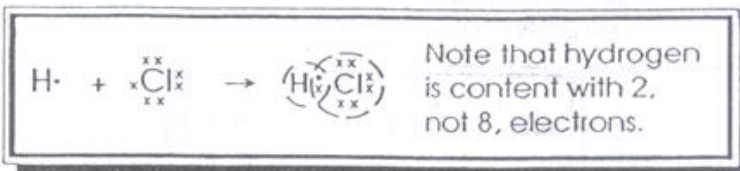


COVALENT BONDING

Name _____

Covalent bonding occurs when two or more nonmetals share electrons, attempting to attain a stable octet of electrons at least part of the time. For example:



Show how covalent bonding occurs in each of the following pairs of atoms. Atoms may share one, two or three pairs of electrons.

<p>1. H + H (H₂) 1 Bond 1 Bond</p> <p style="text-align: center;"> $\text{H}\cdot + \cdot\text{H} \rightarrow \left(\overset{\cdot}{\text{H}}\overset{\cdot}{\text{H}} \right) \rightarrow \text{H}-\text{H} \rightarrow \text{H}_2$ </p>
<p>2. F + F (F₂) 1 Bond 1 Bond</p> <p style="text-align: center;"> $\cdot\ddot{\text{F}}\cdot + \cdot\ddot{\text{F}}\cdot \rightarrow \left(\overset{\cdot}{\ddot{\text{F}}}\overset{\cdot}{\ddot{\text{F}}} \right) \rightarrow \cdot\ddot{\text{F}}-\ddot{\text{F}}\cdot \rightarrow \text{F}_2$ </p>
<p>3. O + O (O₂) 2 Bonds 2 Bonds</p> <p style="text-align: center;"> $\cdot\ddot{\text{O}}\cdot + \cdot\ddot{\text{O}}\cdot \rightarrow \left(\overset{\cdot}{\ddot{\text{O}}}\overset{\cdot}{\ddot{\text{O}}} \right) \rightarrow \cdot\ddot{\text{O}}=\ddot{\text{O}}\cdot \rightarrow \text{O}_2$ </p>
<p>4. N + N (N₂) 3 Bonds 3 Bonds</p> <p style="text-align: center;"> $\cdot\ddot{\text{N}}\cdot + \cdot\ddot{\text{N}}\cdot \rightarrow \left(\overset{\cdot}{\ddot{\text{N}}}\overset{\cdot}{\ddot{\text{N}}} \right) \rightarrow \cdot\ddot{\text{N}}\equiv\ddot{\text{N}}\cdot \rightarrow \text{N}_2$ </p>
<p>5. C + O (CO₂) 4 Bonds 2 Bonds</p> <p style="text-align: center;"> $\cdot\ddot{\text{O}}\cdot + \cdot\ddot{\text{C}}\cdot + \cdot\ddot{\text{O}}\cdot \rightarrow \left(\overset{\cdot}{\ddot{\text{O}}}\overset{\cdot}{\ddot{\text{C}}}\overset{\cdot}{\ddot{\text{O}}} \right) \rightarrow \cdot\ddot{\text{O}}=\text{C}=\ddot{\text{O}}\cdot \rightarrow \text{CO}_2$ </p>
<p>6. H + O (H₂O) 1 Bond 2 Bonds</p> <p style="text-align: center;"> $\text{H}\cdot + \cdot\ddot{\text{O}}\cdot + \cdot\text{H} \rightarrow \left(\overset{\cdot}{\text{H}}\overset{\cdot}{\ddot{\text{O}}}\overset{\cdot}{\text{H}} \right) \rightarrow \text{H}-\ddot{\text{O}}-\text{H} \rightarrow \text{H}_2\text{O}$ </p>