

Bond Polarity

For each of the following pairs of atoms, predict the type of bond that occurs and then draw a diagram to indicate the presence or absence of charges on each.

	Atoms	ΔEN	Bond	Diagram
1	Zinc and Selenium	Se 2.55 Zn 1.65 <u>0.90</u>	weak ionic	$[Zn]^{2+}[:\ddot{Se}:]^{2-}$
2	Carbon and Iodine	I 2.66 C 2.55 <u>0.11</u>	non-polar covalent	$C^{\delta+} - I^{\delta-}$
3	Nitrogen and Nitrogen	N 3.04 N 3.04 <u>0</u>	pure covalent	$:N \equiv N:$
4	Carbon and Chlorine	Cl 3.16 C 2.55 <u>0.61</u>	polar covalent	$C^{\delta+} \rightarrow C\ddot{Cl}^{\delta-}$
5	Silicon and Fluorine	F 3.98 Si 1.90 <u>2.08</u>	ionic	$[Si]^{4+}[:\ddot{F}:]^{-1}$
6	Phosphorous and Sulfur	S 2.58 P 2.19 <u>0.39</u>	non-polar covalent	$P^{\delta+} - S^{\delta-}$
7	Magnesium and Chlorine	Cl 3.16 Mg 1.31 <u>1.85</u>	ionic	$[Mg]^{2+}[:\ddot{Cl}:]^{-1}$
8	Antimony and Bromine	Br 2.96 Sb 2.05 <u>0.91</u>	polar covalent	$Sb^{\delta+} \rightarrow Sb\ddot{Br}^{\delta-}$
9	Copper and Nitrogen	N 3.04 Cu 1.90 <u>1.14</u>	weak ionic	$3[Cu]^{2+}[:\ddot{N}:]^{-3}$ OR $3[Cu]^+[:\ddot{N}:]^{-1}$
10	Potassium and Oxygen	O 3.44 K 0.82 <u>2.62</u>	ionic	$2[K]^+[:\ddot{O}:]^{2-}$

Place the above bonded atoms in order of increasing bond polarity.

3, 2, 6, 4, 1, 8, 9, 7, 5, 10