CONCEPT: FORMAL CHARGE

- Charge given to elements when assuming electrons are shared equally regardless of _____.
  - □ **Bonding Electrons**: Electrons that _____ participate in bonding with other elements.
  - □ **Nonbonding Electrons**: Electrons that _____ participate in bonding with other elements.

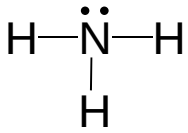
Formal Charge Formula

Formal Charge = _____ Electrons — (_____ + _____ Electrons)

□ **Valence Electrons** = _____ of element □ **Nonbonding Electrons** = Counted _____

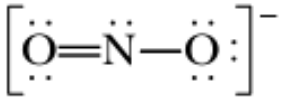
□ **Net Charge** (Overall Charge): the _____ of all formal charges within a compound.

EXAMPLE: Determine the formal charge of the nitrogen atom found within the ammonia molecule, NH_3.



a) –1 b) +2 c) 0 d) +1 e) –2

PRACTICE: Calculate the formal charges for each of the oxygen atoms within the nitrite ion, NO_2^-.



A **B**

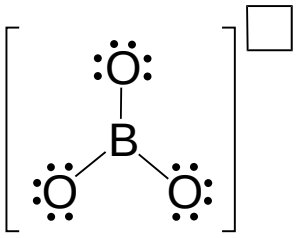
O_A = _____ — (_____ + _____) = _____ O_B = _____ — (_____ + _____) = _____

CONCEPT: FORMAL CHARGE

PRACTICE: Calculate the formal charge of the carbon atom within a carbon monoxide molecule.

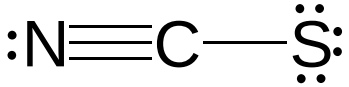
a) –1 b) +2 c) 0 d) +1 e) –2

PRACTICE: Based on calculated formal charges, determine the overall charge (net charge) for the following compound.



a) –3 b) +4 c) +1 d) –1 e) +2

PRACTICE: Which element within the thiocyanate ion possesses a negative charge?



a) C b) S c) N d) All of them e) None of them