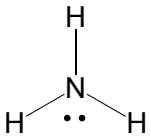
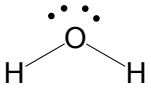
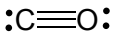
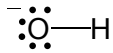
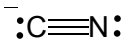
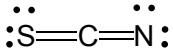
CONCEPT: LIGANDS

Ligand Types

- Molecules or ions that act as _____ bases and donate at least ____ lone pair to a metal cation.

Ligand Types

Neutral Ligands	Anionic Ligands
   	   

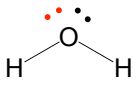
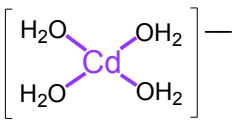
EXAMPLE: Which of the following would represent a neutral ligand?

a) Bromide b) Hydrogen sulfide c) Ammonium d) Hydroxide e) Cyanide

Ligand Reaction

- **Recall:** The adduct = _____ of a Lewis base and acid reaction.
  - □ Overall charge of adduct = _____ of the metal cation + ligand charges.

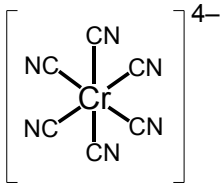
Adduct Formation

Metal Cation	Ligands	Adduct
Cadmium Ion	Water	Cation-Ligand
		
Lewis _____	Lewis _____	

EXAMPLE: Determine the adduct product when a Nickel (III) ion combines with 2 bromide ions.

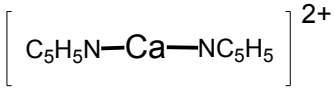
CONCEPT: LIGANDS

PRACTICE: Determine the charge of the metal cation in the given adduct product below:



a) +1 b) 0 c) –2 d) +3 e) +2

PRACTICE: Determine the type of ligand connected to the calcium ion.



a) Neutral b) Anionic c) Cationic d) Not enough information given.

PRACTICE: Determine the overall charge of the adduct when the aluminum ion combines with 2 bromides and 1 chlorides.

a) +1 b) 0 c) –2 d) –1 e) +2