

Tu 2022-01-04

# Lewis Dot Diagrams

## Molecules to Draw

First, draw Lewis Dot Diagrams for the following molecules. Count up the total valence electrons before you begin and make sure they all make it into the structure you draw. Be sure to show all lone pairs. Second, write names for the compounds and ions, if you have been taught how.

Your Name:

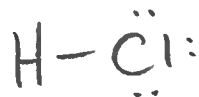
Date:

Class:

## Easy

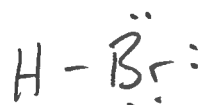
1. HCl HYDROGEN CHLORIDE

8e<sup>-</sup>



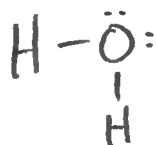
2. HBr HYDROGEN BROMIDE

8e<sup>-</sup>



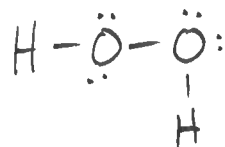
3. H<sub>2</sub>O WATER

8e<sup>-</sup>



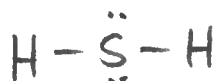
4. H<sub>2</sub>O<sub>2</sub> HYDROGEN PEROXIDE

14e<sup>-</sup>



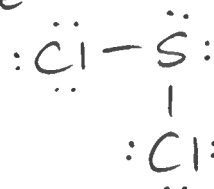
5. H<sub>2</sub>S HYDROGEN SULFIDE

8e<sup>-</sup>



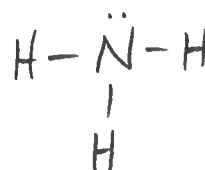
6. SCl<sub>2</sub> SULFUR DICHLORIDE

20e<sup>-</sup>



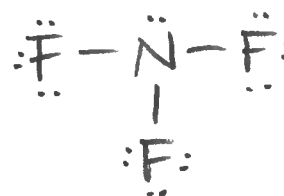
7. NH<sub>3</sub> AMMONIA

8e<sup>-</sup>



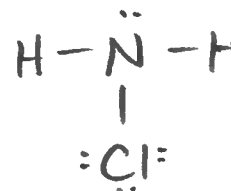
8. NF<sub>3</sub> NITROGEN TRIFLUORIDE

26e<sup>-</sup>



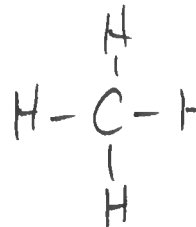
9. NH<sub>2</sub>Cl (CHLORAMINE)

14e<sup>-</sup>



10. CH<sub>4</sub> (central C) METHANE

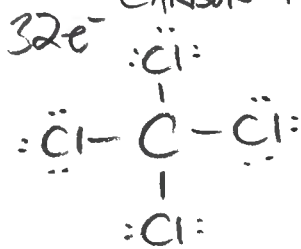
8e<sup>-</sup>



# Harder

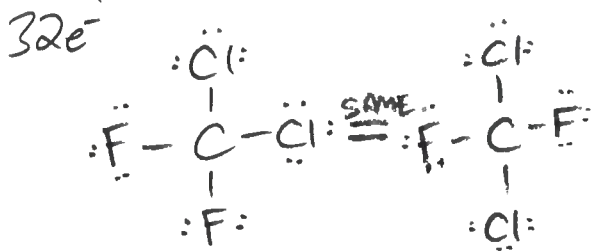
11.  $\text{CCl}_4$  (central C)

CARBON TETRACHLORIDE



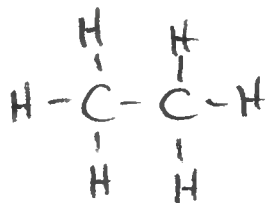
12.  $\text{CCl}_2\text{F}_2$  (central C)

(DICHLORO DIFLUOROMETHANE)



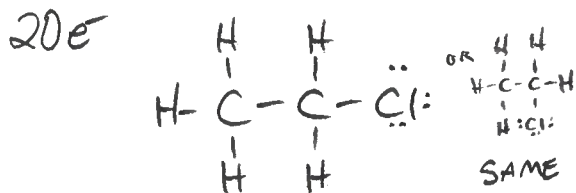
13.  $\text{C}_2\text{H}_6$

$10e^-$  (ETHANE)

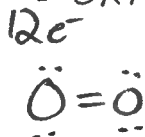


14.  $\text{C}_2\text{H}_5\text{Cl}$  (carbon-carbon-chlorine sequence)

(CHLOROETHANE)



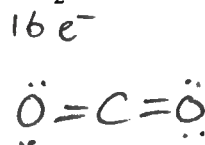
15.  $\text{O}_2$  OXYGEN



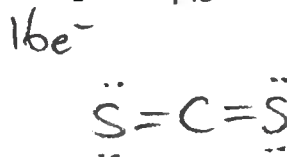
16.  $\text{N}_2$  NITROGEN



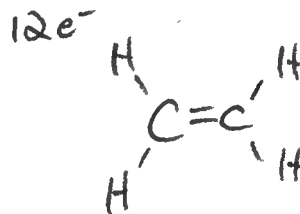
17.  $\text{CO}_2$  CARBON DIOXIDE



18.  $\text{CS}_2$  CARBON DISULFIDE

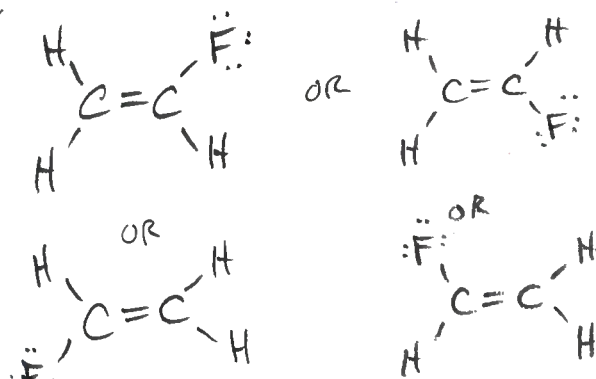


19.  $\text{C}_2\text{H}_4$  (ETHYLENE)



20.  $\text{C}_2\text{H}_3\text{F}$  (FLUOROETHYLENE)

ALL ARE THE SAME



Some molecules on this page involve violations of the octet rule. Be aware!

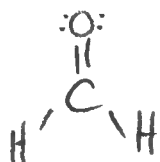
21. C<sub>2</sub>H<sub>2</sub> (ACETYLENE)

10e<sup>-</sup>



22. H<sub>2</sub>CO (FORMALDEHYDE)

12e<sup>-</sup>



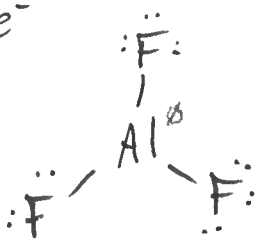
23. HCN (HYDROGEN CYANIDE)

10e<sup>-</sup>



24. AlF<sub>3</sub> ALUMINUM (TRI-) FLUORIDE

24e<sup>-</sup>



NO DOUBLE BONDS TO F! (OR Cl, Br, or I)

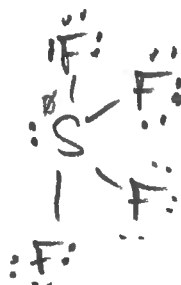
25. BeCl<sub>2</sub>

16e<sup>-</sup> BERYLLIUM (DI-) CHLORIDE



26. SF<sub>4</sub> SULFUR TETRAFLUORIDE

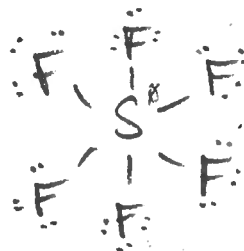
34e<sup>-</sup>



S HAS 10e<sup>-</sup>!

27. SF<sub>6</sub> SULFUR HEXAFLUORIDE

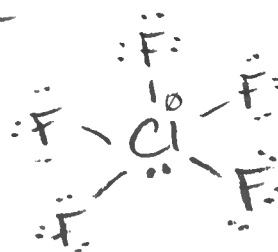
48e<sup>-</sup>



S HAS 12e<sup>-</sup>!

28. ClF<sub>5</sub> CHLORINE PENTAFLUORIDE

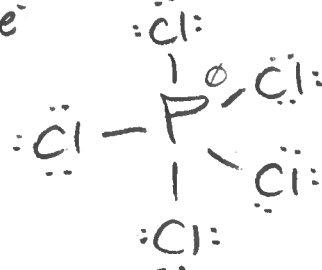
42e<sup>-</sup>



Cl HAS 12e<sup>-</sup>!

29. PCl<sub>5</sub> PHOSPHORUS PENTACHLORIDE

40e<sup>-</sup>

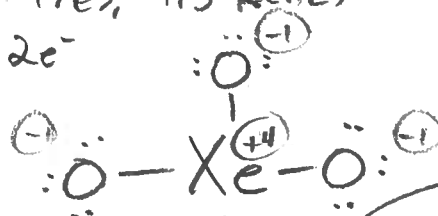


P HAS 10e<sup>-</sup>!

30. XeO<sub>4</sub>

XENON TETROXIDE  
(YES, IT'S REAL)

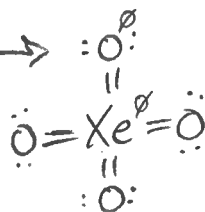
32e<sup>-</sup>



FOLLOW THE OCTET RULE !! THIS CASE B/C Xe IS NOT GIVING ANY e<sup>-</sup> TO BONDING

ACCEPTABLE BUT UNREALISTIC B/C Xe HAS 16e<sup>-</sup>!

Xe HAS A FULL VALENCE SHELL AND CANNOT BIND ANY MORE ELECTRONS.



All of the molecules on this page have a formal charge on one or more atoms. Clearly identify which ones and label each atom that has a formal charge.

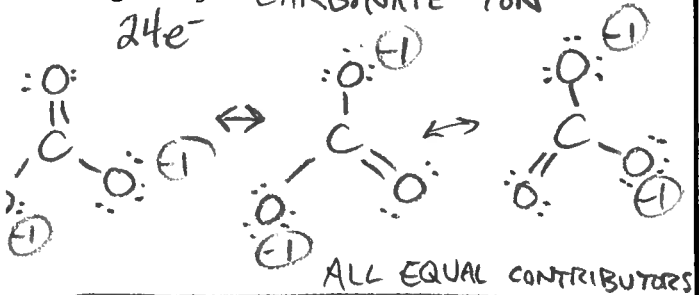
Some molecules on this page have several resonance forms. Draw all reasonable resonance forms if you have been taught how to do this. If you don't know what resonance forms are, then ignore this instruction.

31. OH<sup>-</sup> HYDROXIDE ION



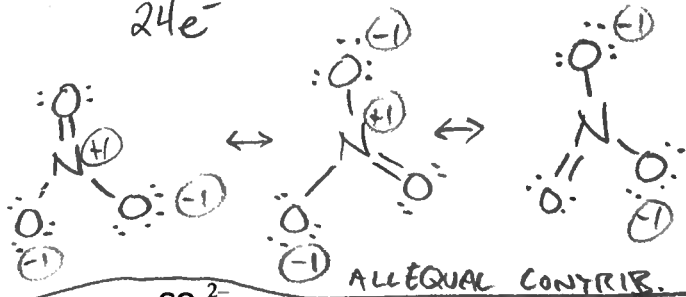
32. CO<sub>3</sub><sup>2-</sup> CARBONATE ION

24e<sup>-</sup>



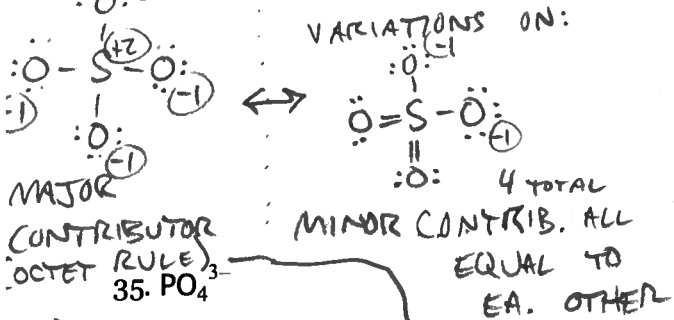
33. NO<sub>3</sub><sup>-</sup> NITRATE ION

24e<sup>-</sup>



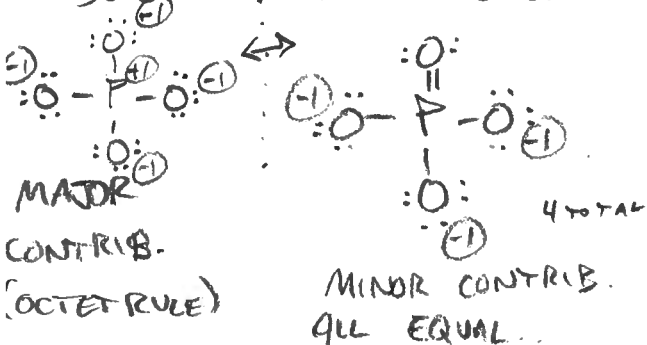
34. SO<sub>4</sub><sup>2-</sup> SULFATE ION

32e<sup>-</sup>



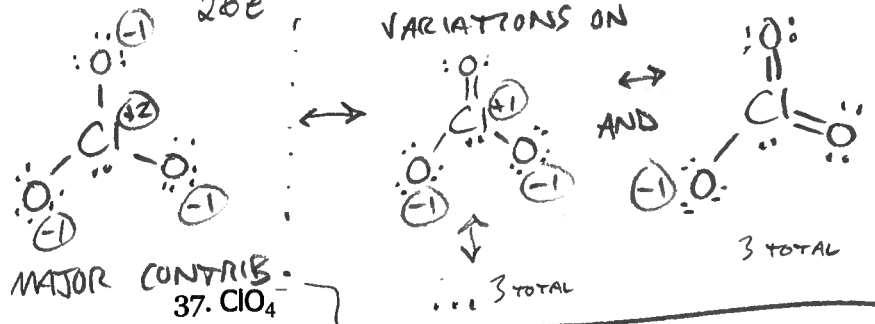
35. PO<sub>4</sub><sup>3-</sup> PHOSPHATE ION

32e<sup>-</sup>



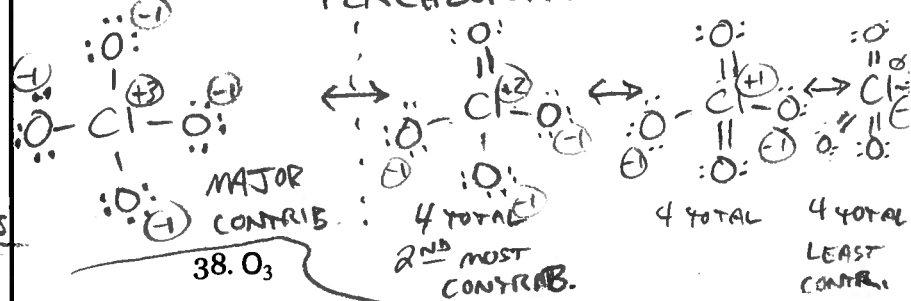
36. ClO<sub>3</sub><sup>-</sup> CHLORATE ION

26e<sup>-</sup>



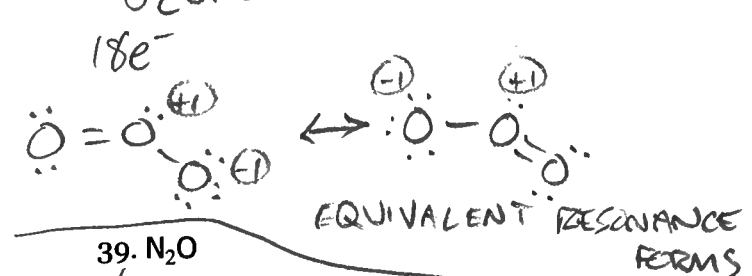
37. ClO<sub>4</sub><sup>-</sup> PERCHLORATE ION

32e<sup>-</sup>



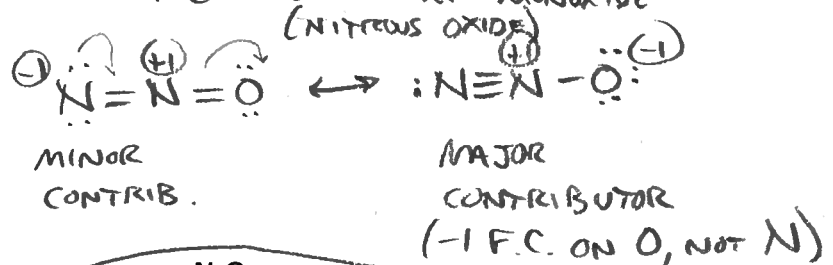
38. O<sub>3</sub> OZONE

18e<sup>-</sup>



39. N<sub>2</sub>O DINITROGEN MONOXIDE (NITROUS OXIDE)

16e<sup>-</sup>



40. N<sub>2</sub>O<sub>4</sub> DINITROGEN TETROXIDE

34e<sup>-</sup>

