

2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

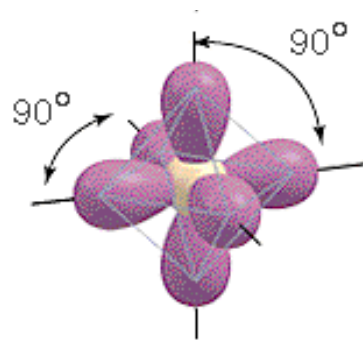
1) Quais das seguintes moléculas tem o ângulo de ligação de 90° ? Justifique.



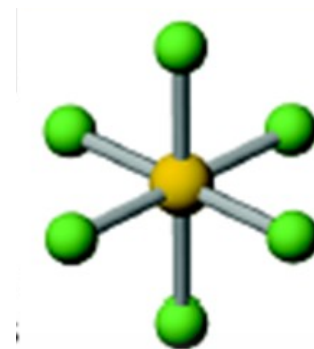
1a)
 TeF_6



$$\left\{ \begin{array}{l} \text{Te: } 6e^- \\ \underline{6\text{F: } 6e^-} \\ 12e^- / 2 = 6 \text{ pares} \\ \text{de } e^- \end{array} \right.$$



Geometria
eletrônica:
Octaédrica (O_h)
Hibridização sp^3d^2



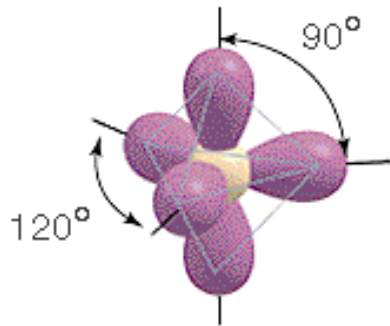
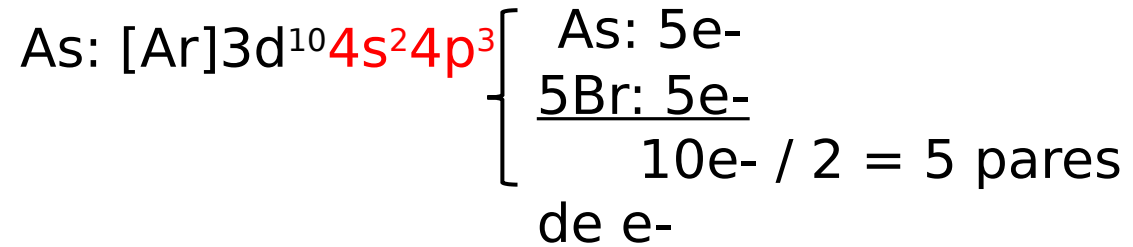
Geometria Molecular ou Forma:
Octaédrica
(Apolar)

Todos os ângulos: 90°

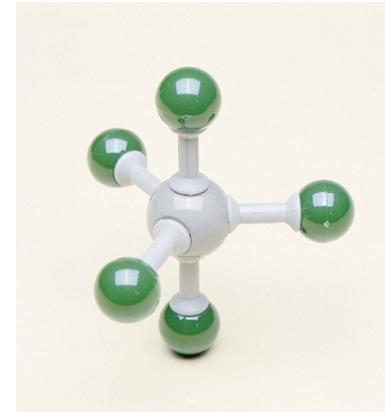
2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

1b)

AsBr₅



Geometria
eletrônica:
Bipirâmide trigonal
Hibridização: sp^3d^1



ângulos: 90° e
120°

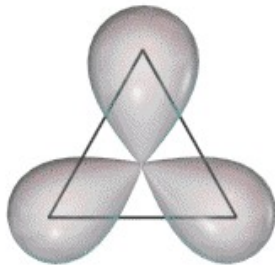
Geometria Molecular ou Forma:
Bipirâmide trigonal
(Apolar)

2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

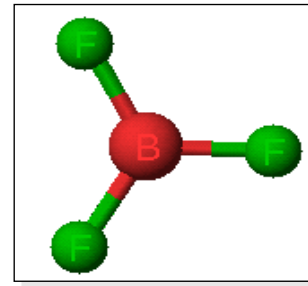
c) GaI_3

Ga: $[\text{Ar}]3d^{10}4s^24p^1$

$$\left\{ \begin{array}{l} \text{Ga: } 3e^- \\ \text{3I: } 3e^- \\ \hline 6e^- / 2 = 3 \text{ pares de } e^- \end{array} \right.$$



Geometria
eletrônica:
Trigonal Planar
Hibridização: sp^2



ângulos: 120°

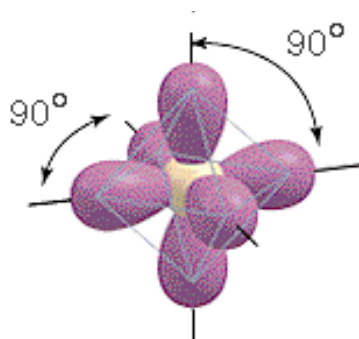
Geometria Molecular ou Forma:
Trigonal Planar
(Apolar)

2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

1d) XeF_4

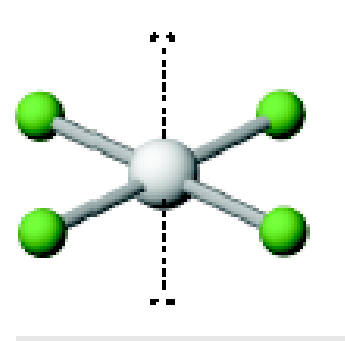
Xe: $[\text{Kr}]4d^{10}5s^25p^6$

$$\left\{ \begin{array}{l} \text{Xe: } 8e^- \\ \underline{4\text{F: } 4e^-} \\ 12e^- / 2 = 6 \text{ pares de } e^- \end{array} \right.$$



Geometria
eletrônica:
octaédrica

Hibridização sp^3d^2



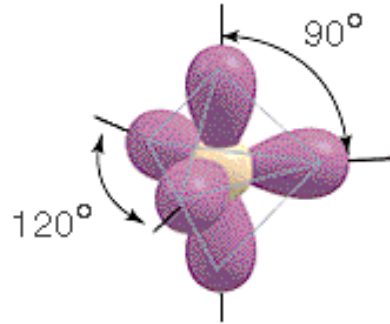
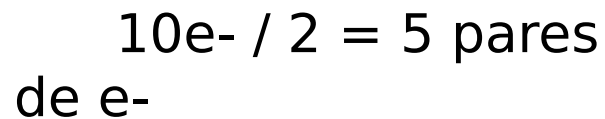
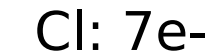
Geometria Molecular ou Forma:
Quadrado planar
(Apolar)

Todos os ângulos:
 90°

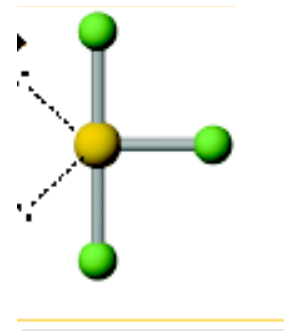
2) Quais das seguintes espécies tem o ângulo de ligação de 120° ? Justifique.



2a) ClF_3



Geometria
eletrônica:
Bipirâmide trigonal
Hibridização: sp^3d^1



ângulos: diferentes
 90° e 120°

Geometria Molecular ou Forma:
Forma T
(Polar)

2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

2b)

[SbBr₆]⁻

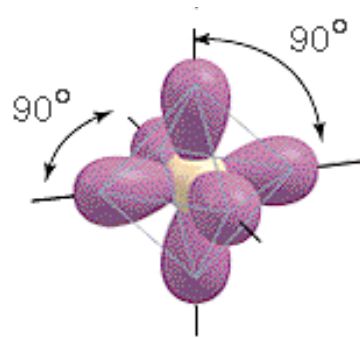
Sb: [Kr]4d¹⁰5s²5p³

Te: 5e-

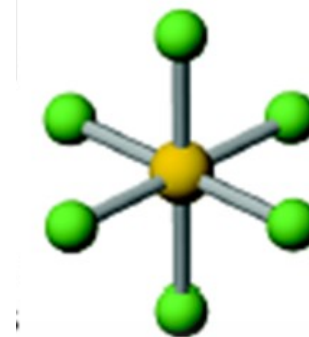
6Br: 6e-

1e: 1e-

12e- / 2 = 6 pares
de e-



Geometria
eletrônica:
Octaédrica (O_h)
Hibridização sp³d²



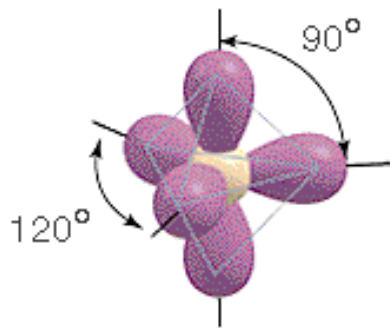
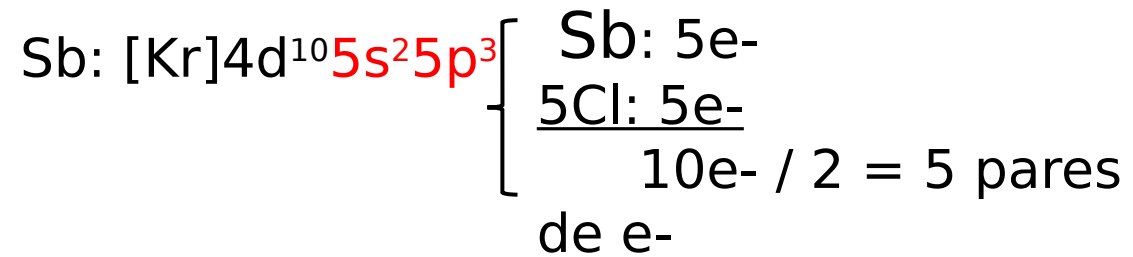
Geometria Molecular ou Forma:
Octaédrica (O_h)
(Apolar)

Todos os ângulos: 90°

2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

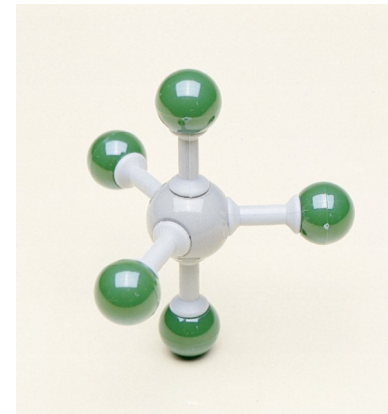
2c)

SbCl₅



Geometria
eletrônica:
Bipirâmide trigonal

Hibridização: sp^3d^1



ângulos: 90° e
120°

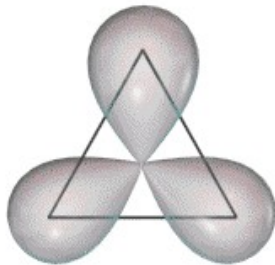
Geometria Molecular ou Forma:
Bipirâmide trigonal
(Apolar)

2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

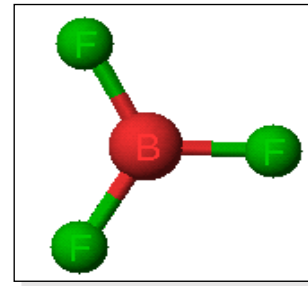
d) InCl_3

In: $[\text{Kr}]4d^{10}5s^25p^1$

$$\left\{ \begin{array}{l} \text{In: } 3e^- \\ \underline{3\text{Cl: } 3e^-} \\ 6e^- / 2 = 3 \text{ pares de } e^- \end{array} \right.$$



Geometria
eletrônica:
Trigonal Planar
Hibridização: sp^2



ângulos: 120°

Geometria Molecular ou Forma:
Trigonal Planar
(Apolar)

4) Indique quais das seguintes moléculas triatômicas são lineares ou angulares? Justifique.

4a) TeF_2

a) TeF_2

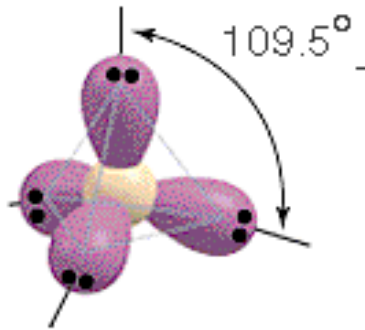
b) SnBr_2

c) KrF_2

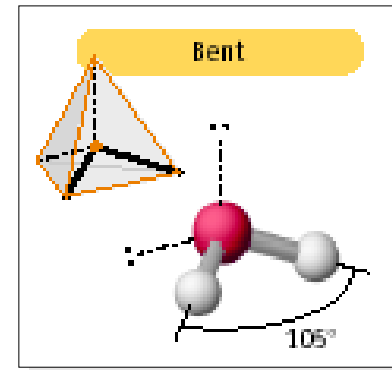
d) OF_2

Te: $[\text{Kr}]4d^{10}5s^25p^4$

$$\left[\begin{array}{l} \text{Te: } 6e^- \\ \text{2F: } 2e^- \\ \hline 8e^- / 2 = 4 \text{ pares de } e^- \end{array} \right.$$



Geometria
eletrônica:
Tetraédrica
Hibridização: sp^3



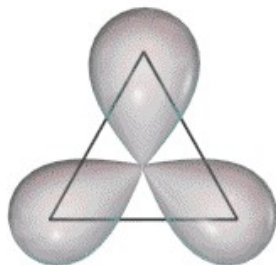
Geometria Molecular ou Forma:
Angular
(Polar)

ângulos:
diferente de
 $109,5^\circ$

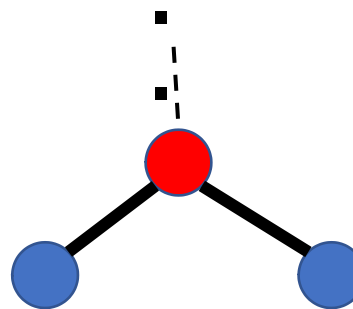
4b) SnBr_2

Sn: $[\text{Kr}]4d^{10}5s^25p^2$

$$\left\{ \begin{array}{l} \text{Sn: } 4e^- \\ \underline{2\text{Br: } 2e^-} \\ 6e^- / 2 = 3 \text{ pares de } e^- \end{array} \right.$$



Geometria
eletrônica:
Trigonal Planar
Hibridização: sp^2

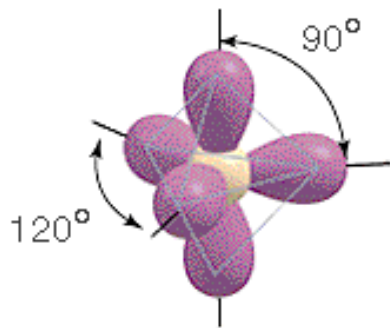
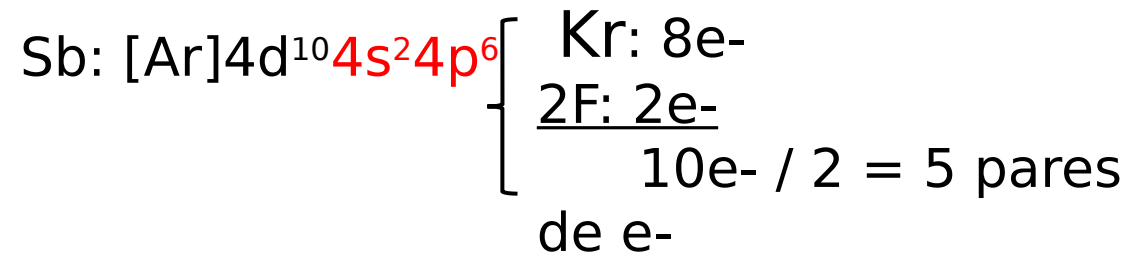


Geometria Molecular ou Forma:
Angular
(Polar)

ângulos:
diferente de
 $109,5^\circ$

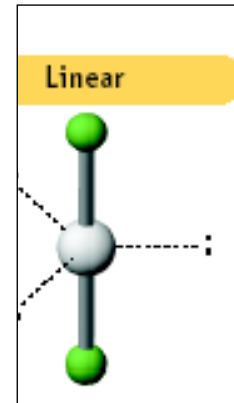
2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

4c) KrF_2



Geometria
eletrônica:
Bipirâmide trigonal

Hibridização: sp^3d^1



Geometria Molecular ou Forma:
Linear
(Apolar)

ângulos: 180°

4) Indique quais das seguintes moléculas triatômicas são lineares ou angulares? Justifique.

4a) OF_2

a) TeF_2

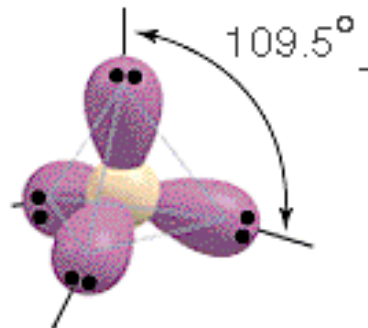
b) SnBr_2

c) KrF_2

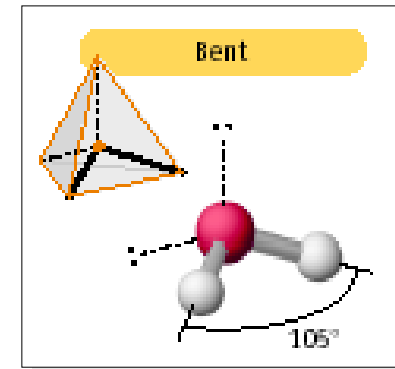
d) OF_2

O: $[\text{Kr}]4d^{10}2s^22p^4$

$$\left\{ \begin{array}{l} \text{O: } 6e^- \\ \text{2F: } 2e^- \\ \hline 8e^- / 2 = 4 \text{ pares de } e^- \end{array} \right.$$



Geometria
eletrônica:
Tetraédrica (Td)
Hibridização: sp^3



Geometria Molecular ou Forma:
Angular
(Polar)

ângulos:
diferente de
 $109,5^\circ$

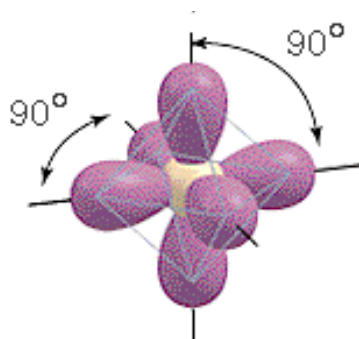
5) Indique quais das seguintes espécies são bipirâmide trigonal? Explique.



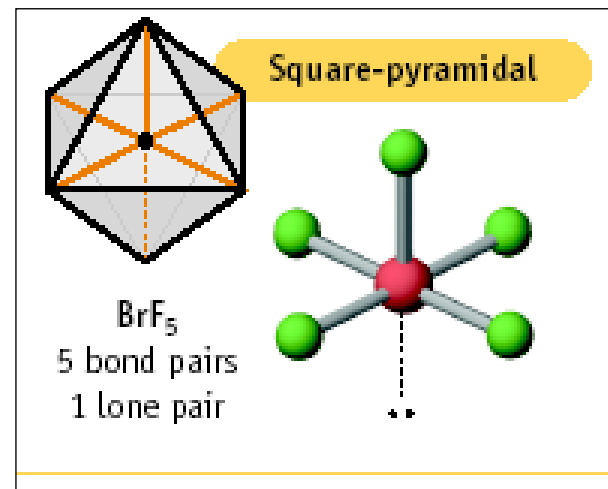
1d) BrF_5



$$\left\{ \begin{array}{l} \text{Xe: } 7e^- \\ \underline{5\text{F: } 5e^-} \\ 12e^- / 2 = 6 \text{ pares de } e^- \end{array} \right.$$



Geometria
eletrônica:
Octaédrica (O_h)
Hibridização sp^3d^2

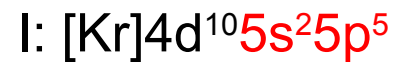


Geometria Molecular ou Forma:
Pirâmide de base quadrada
(Apolar)

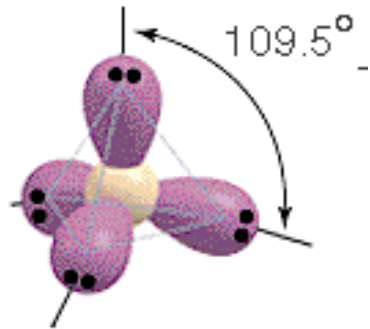
7) Encontre a forma das seguintes espécies :



7a) $[\text{IF}_2]^+$

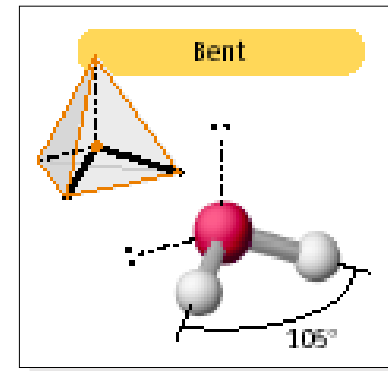


$$\left\{ \begin{array}{l} \text{I: } 7e^- \\ 2\text{F: } 2e^- \\ \hline -1e^-: -1e^- \\ \hline 8e^- / 2 = 4 \text{ pares de } e^- \end{array} \right.$$



Geometria
eletrônica:
Tetraédrica (T_d)

Hibridização: sp^3



Geometria Molecular ou Forma:
Angular
(Polar)

ângulos:
diferente de
 $109,5^\circ$

2ª Lista de Exercício: LIGAÇÃO COVALENTE - Teoria VSEPR

7c) $[\text{IF}_4]^+$

I: $[\text{Kr}]4d^{10}5s^25p^5$

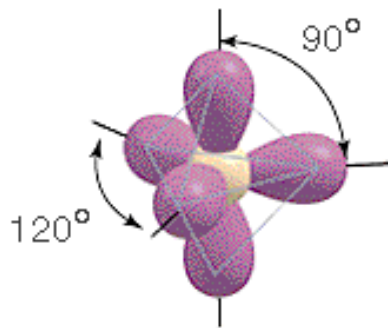


I: 7e-

4F: 4e-

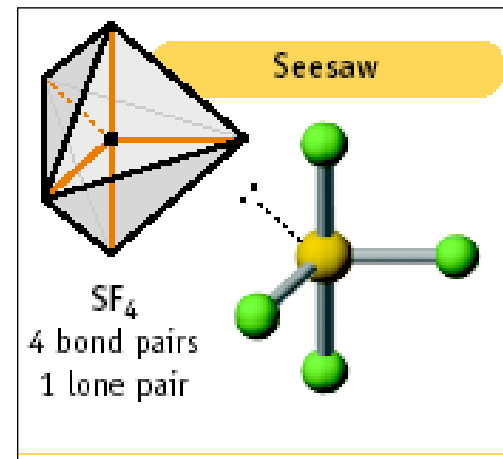
-1e:-1e-

10e- / 2 = 5 pares de e-



Geometria
eletrônica:
Bipirâmide trigonal

Hibridização: sp^3d^1



Geometria Molecular ou Forma:
Gangorra
(Polar)

