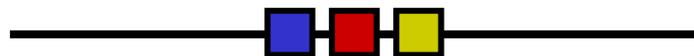
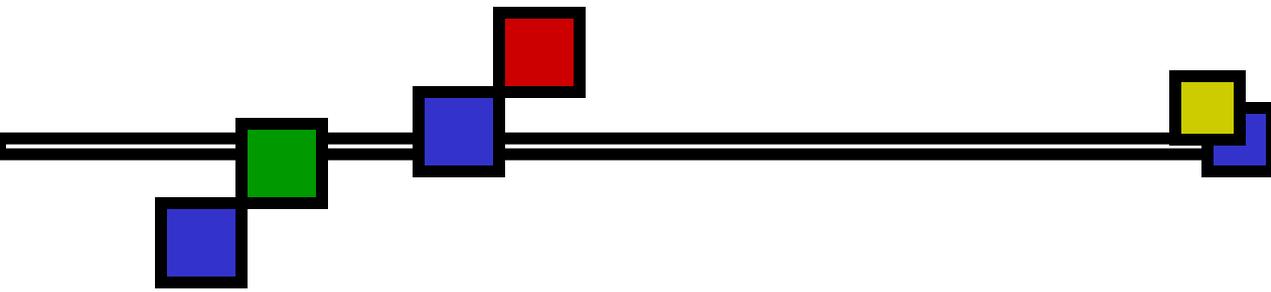


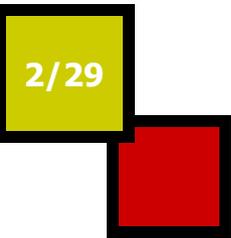
# Vistas Ortográficas



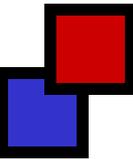
**PCC3100 Mecatrônica – Representação  
Gráfica para Projeto**



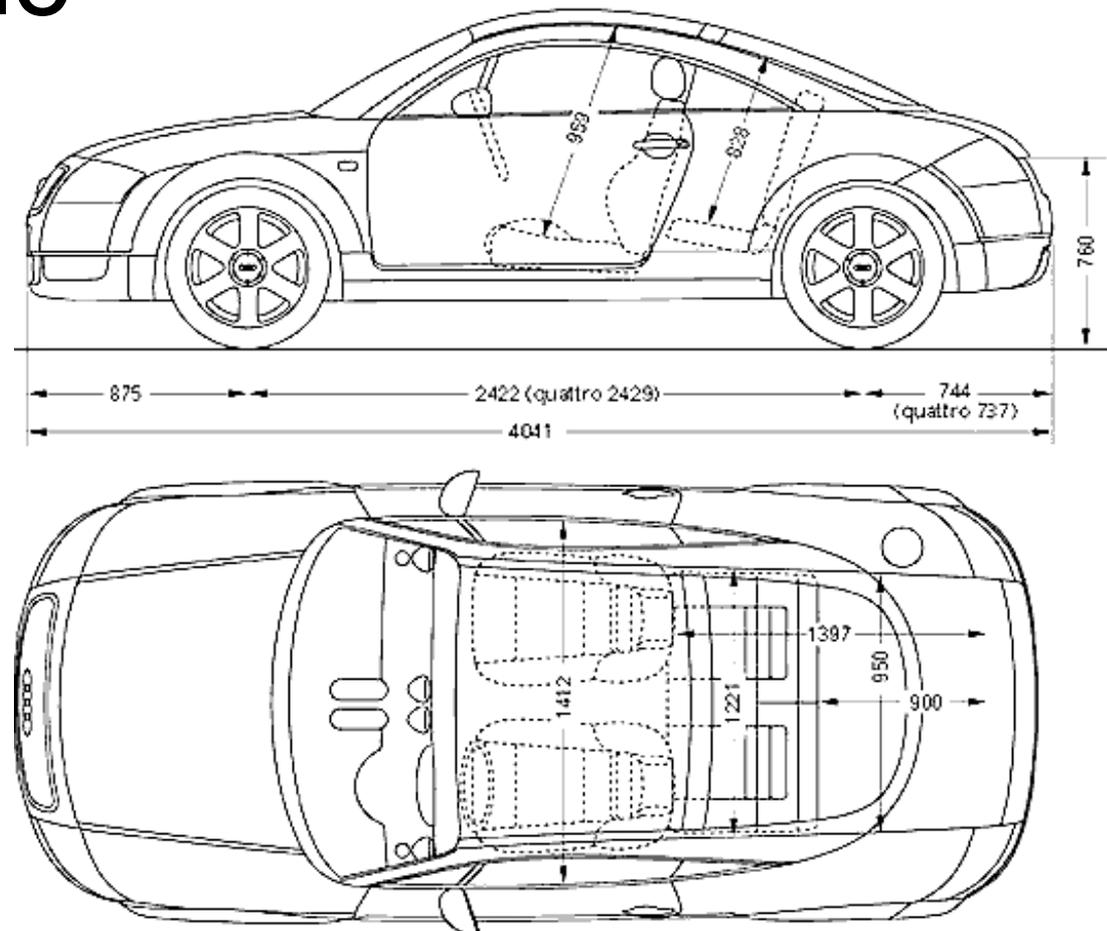
# Vistas Ortográficas

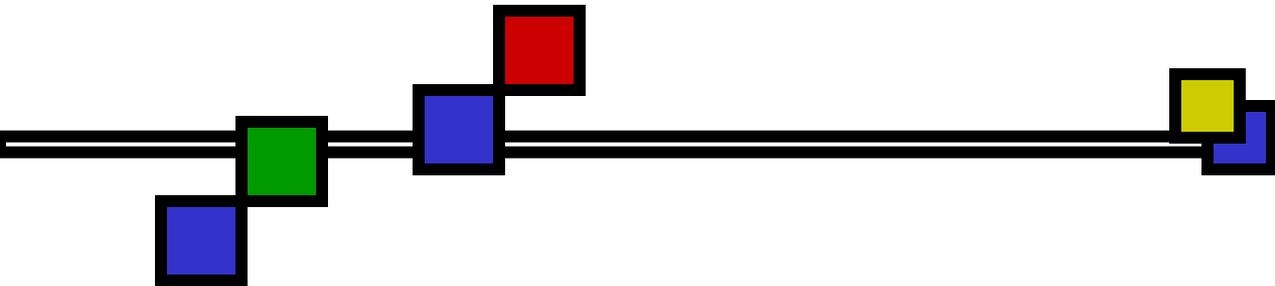


- Esquema de representação planar de objetos tri-dimensionais;
- A principal forma de representação usada em Engenharia;
- Fundamentada na Geometria Descritiva;
- Regulada por normas técnicas.

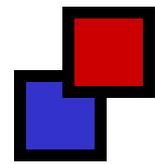
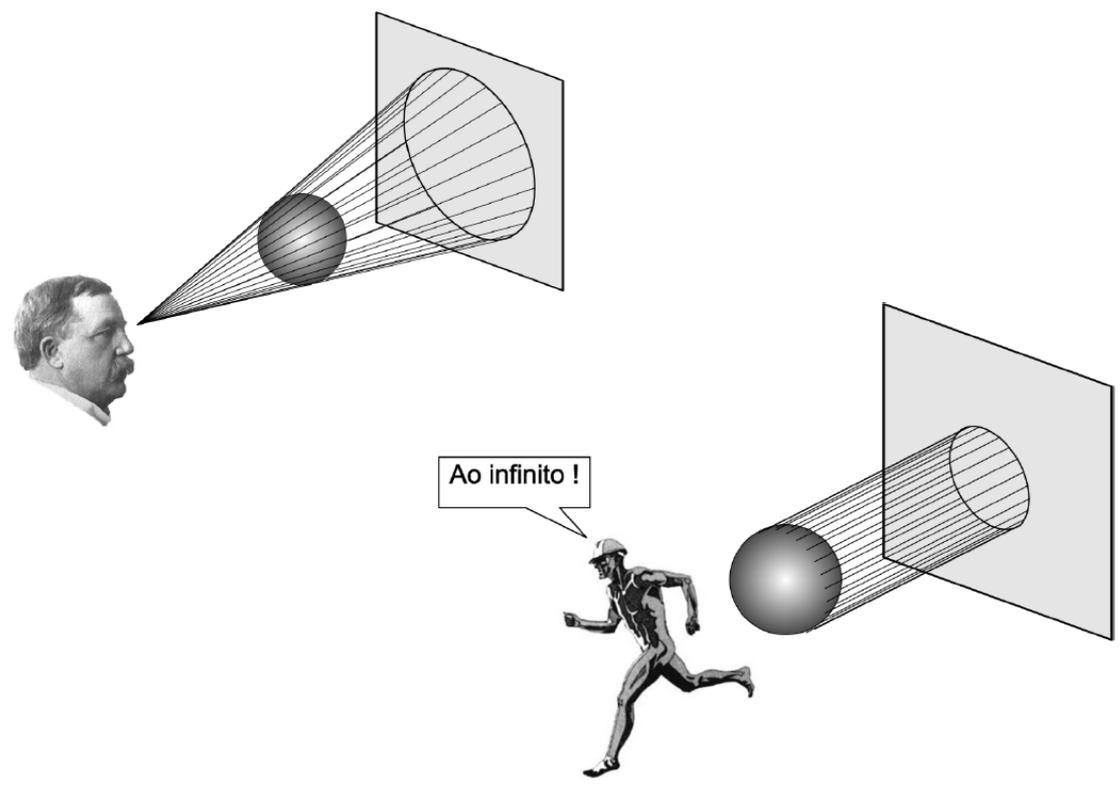
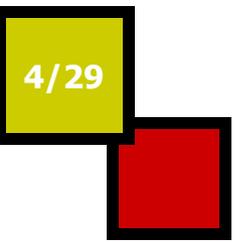


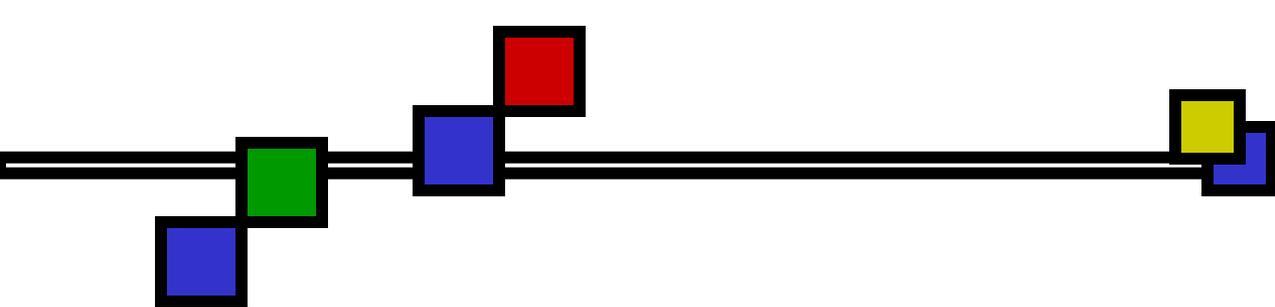
# Exemplo



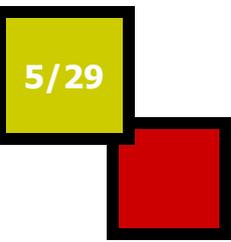


# Sistema de Projeção

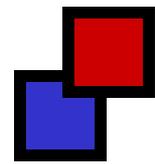
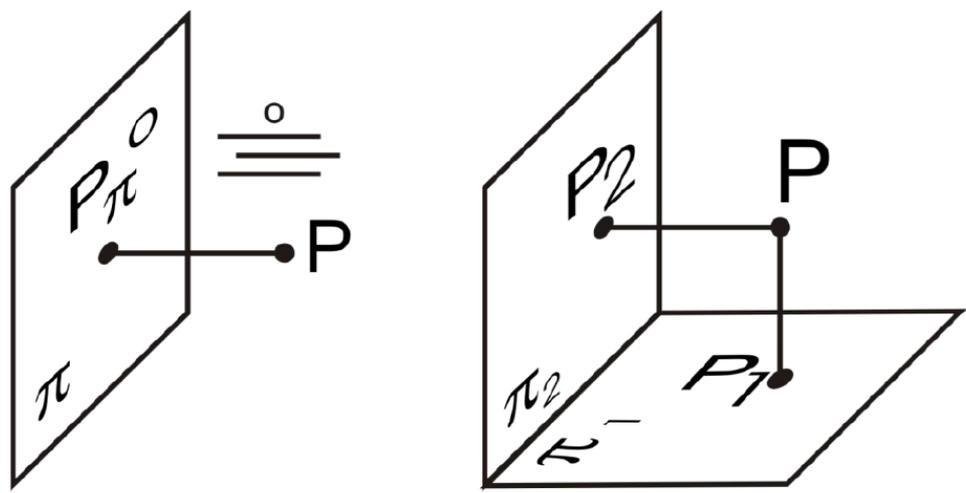


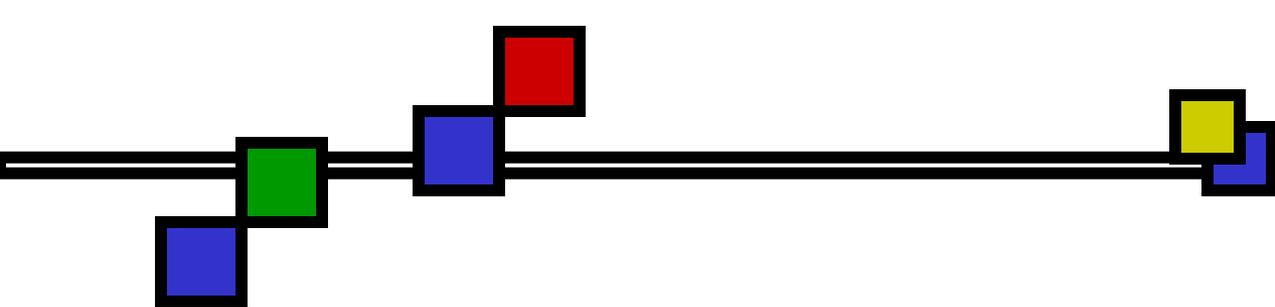


# Sistema de Projeção Cilíndrica Ortogonal

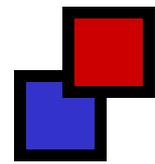
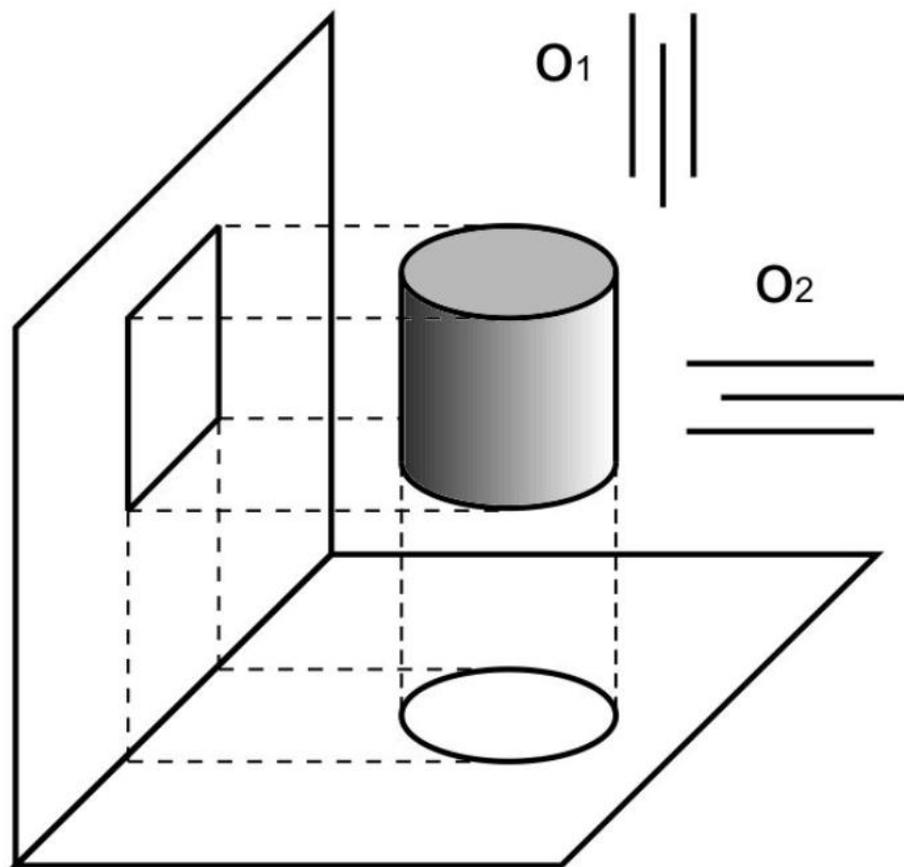
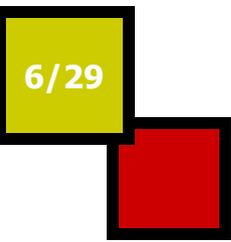


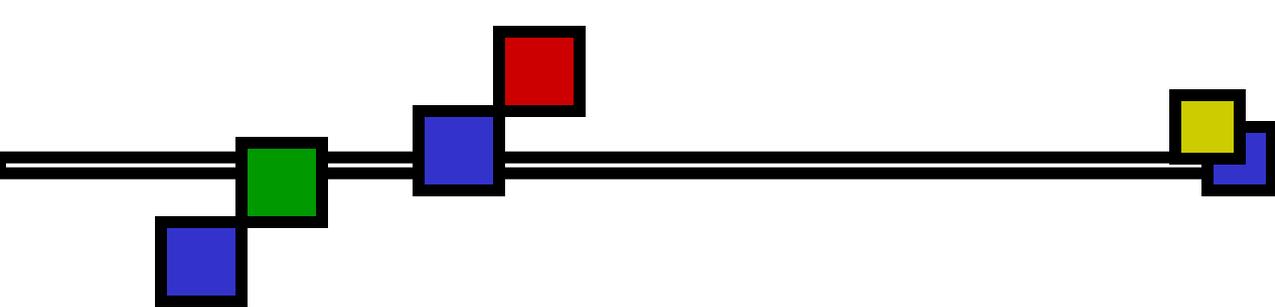
- Sistema Mongeano (o mesmo de GD)
  - Projeção dupla de um ponto



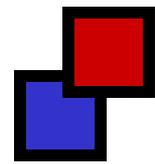
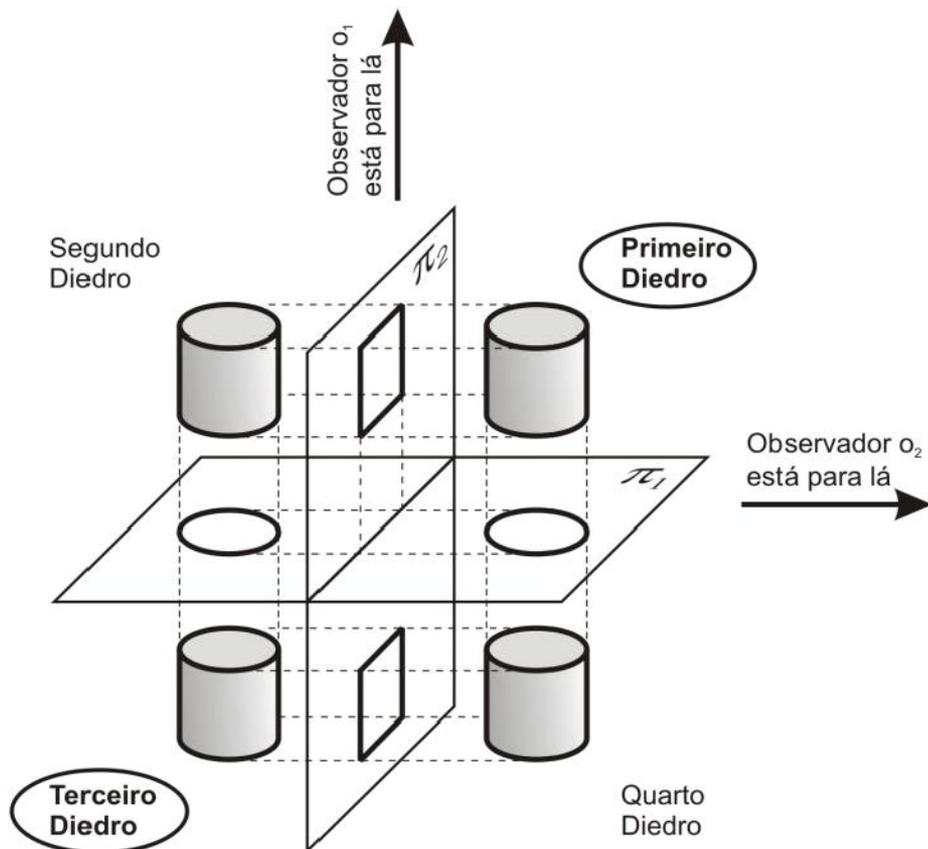
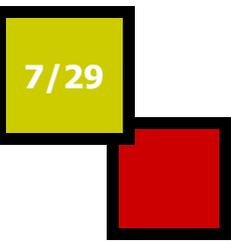


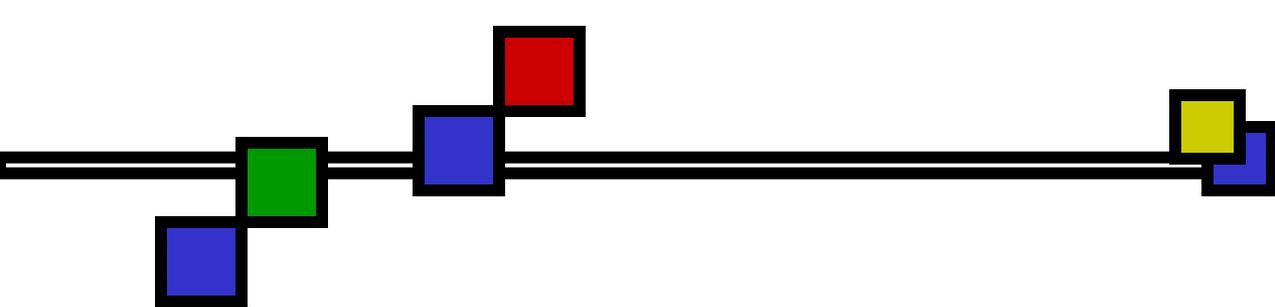
# Projeção dupla de um objeto



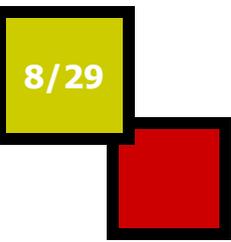


# Diedros e projeções nos planos (recordação)

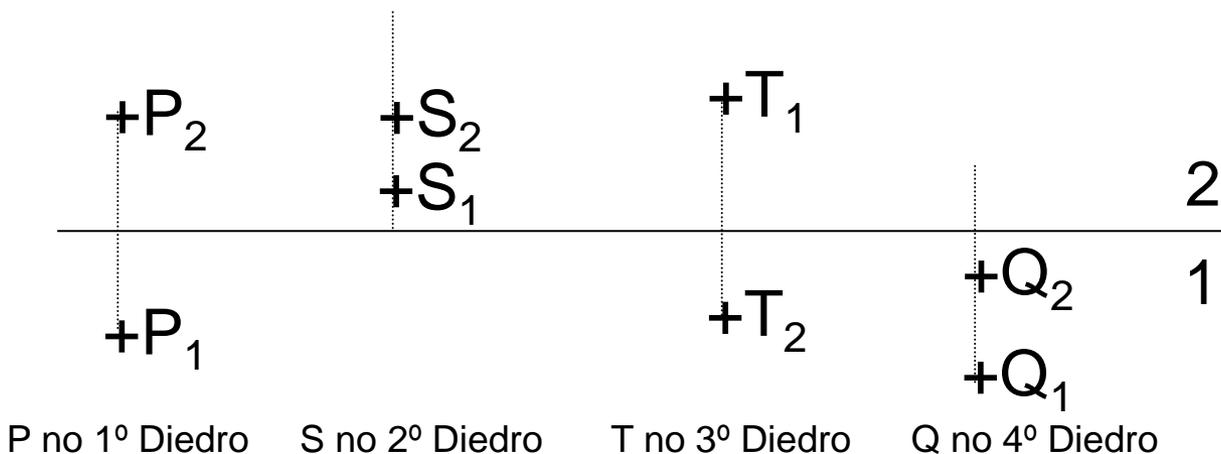
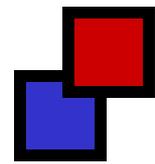


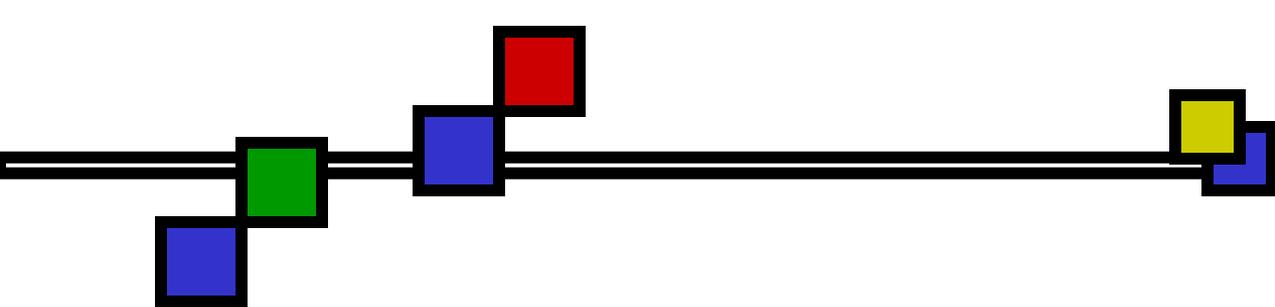


# Escolha do diedro

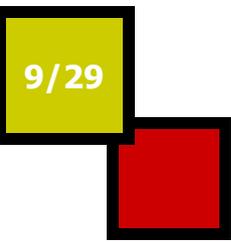


- Já sabemos que pontos nos diedros pares têm as duas projeções acima ( $2^\circ$ ) ou abaixo ( $4^\circ$ ) da linha de terra.

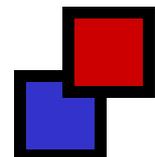
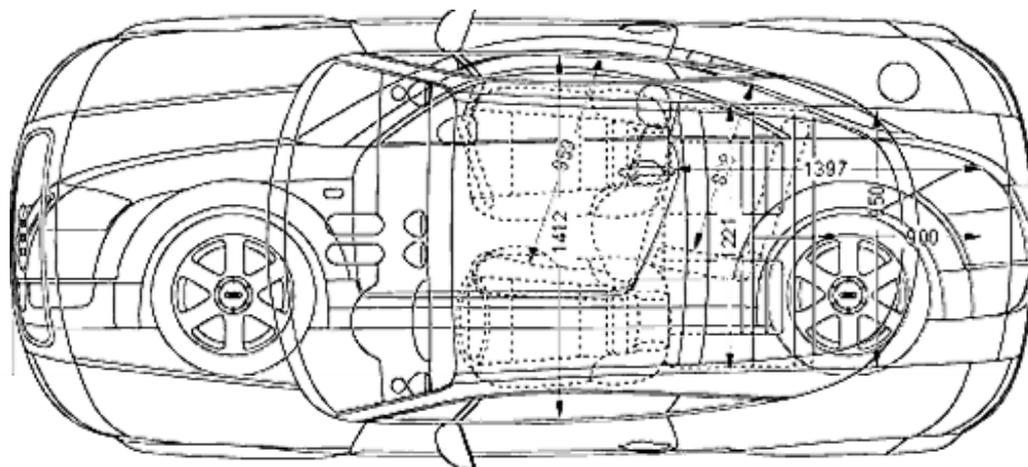


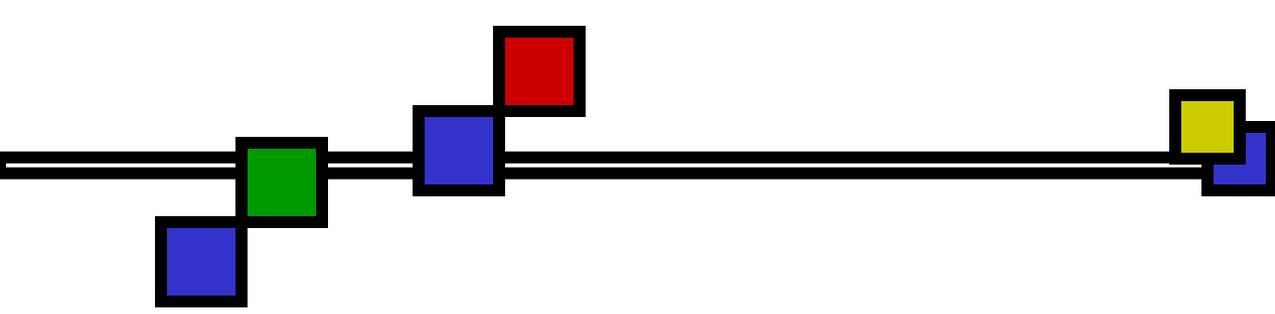


# Escolha do diedro



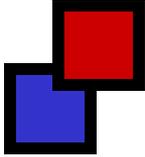
- Se o objeto for posicionado num diedro par para geração das projeções:
  - Sobreposição de vistas !

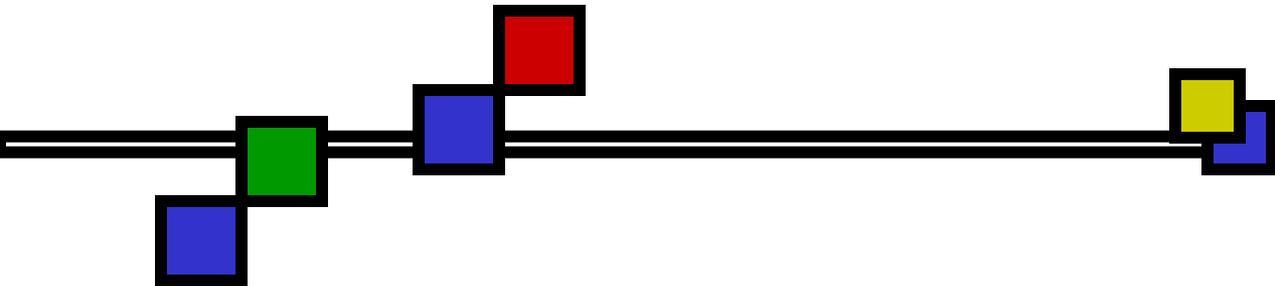




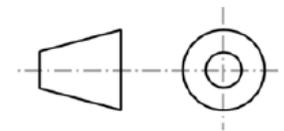
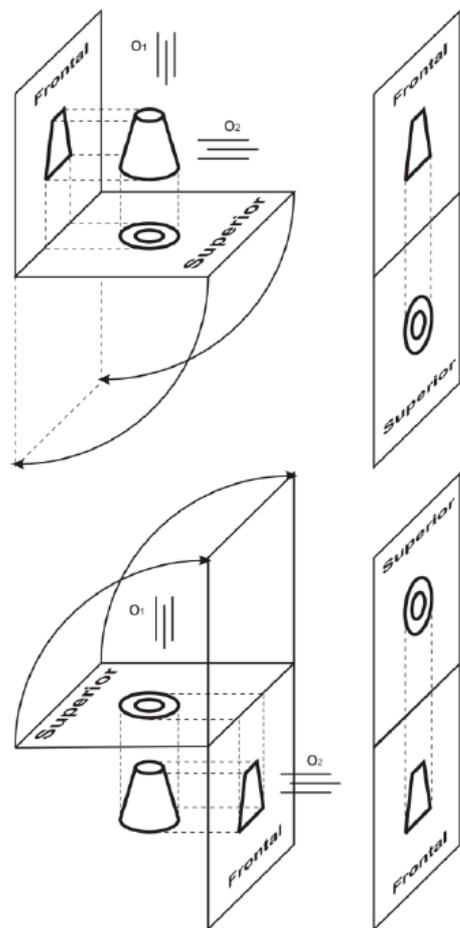
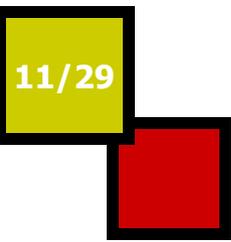
# Escolha do diedro

10/29

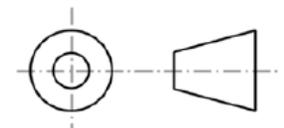
- Por esta razão, adota-se colocar o objeto num diedro IMPAR para gerar suas vistas ortográficas.
  - Convenções:
    -  Normas DIN (Deutsches Institut für Normung)
      - Só **1º** Diedro;
    -  Normas ANSI (American National Standards Institute)
      - Só **3º** Diedro;
    -  Normas ABNT (Associação Brasileira de Normas Técnicas)
      - **1º** ou **3º** Diedro (o 1º diedro é o mais adotado);
- 



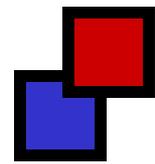
# Projeções no 1º e 3º Diedro

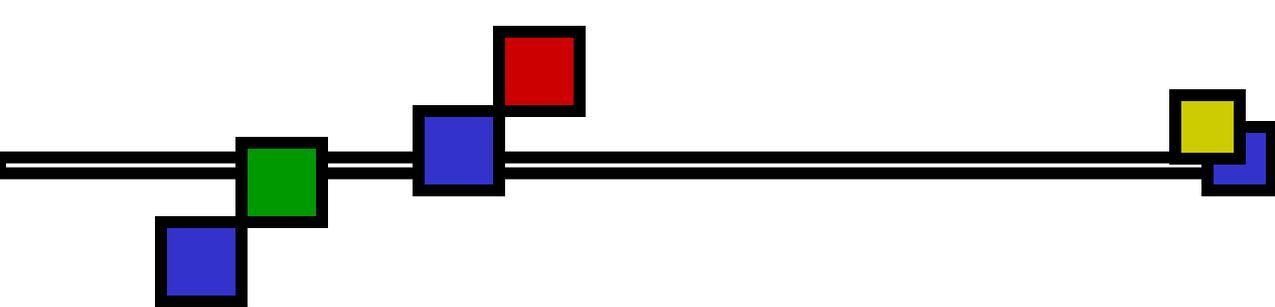


**Primeiro Diedro**

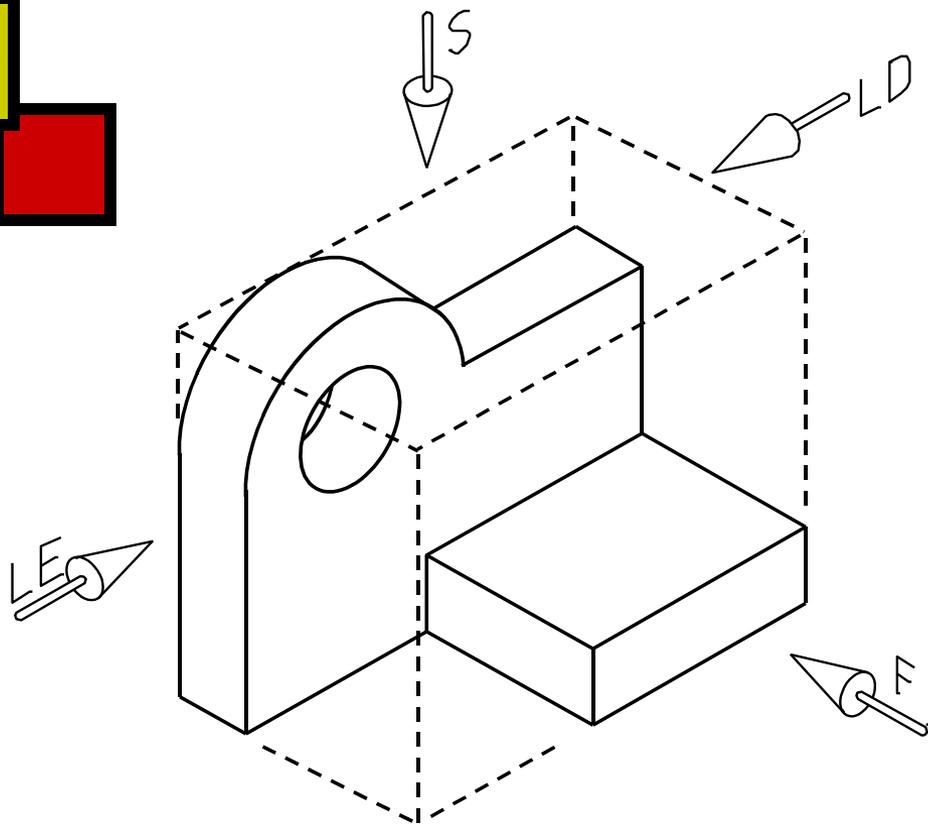
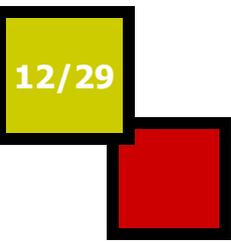


**Terceiro Diedro**

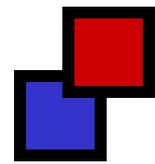




# As vistas principais



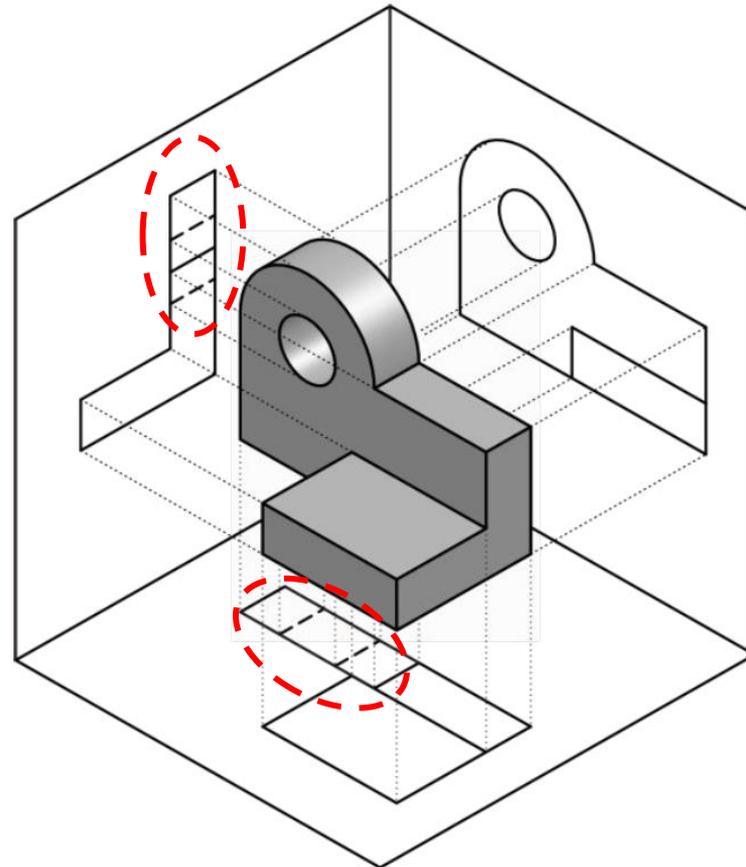
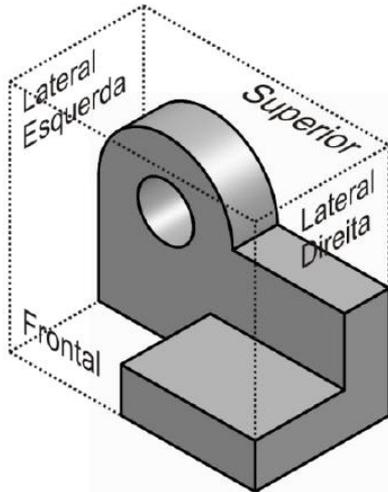
- Superior
- Frontal
- Lateral Esquerda
- Lateral Direita
- Inferior
- Posterior

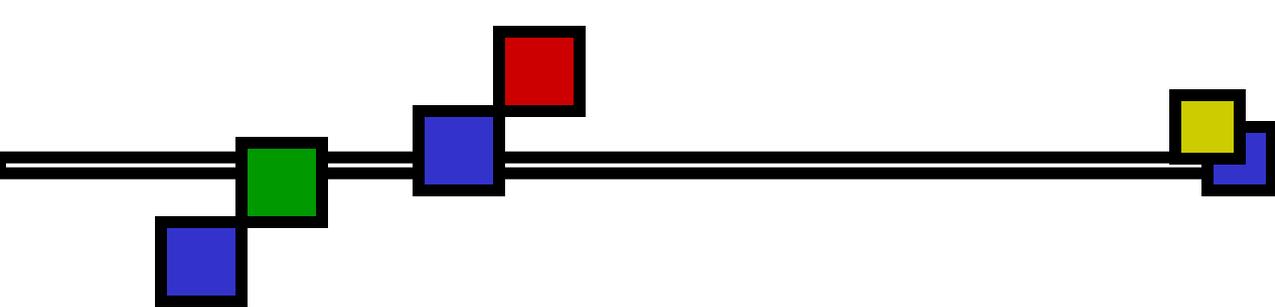


# Colocação no 1º Diedro

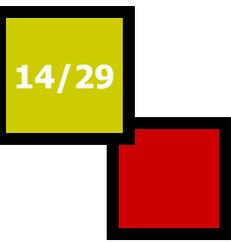
- Ordem: Observador – Objeto - Plano

Primeiro Diedro

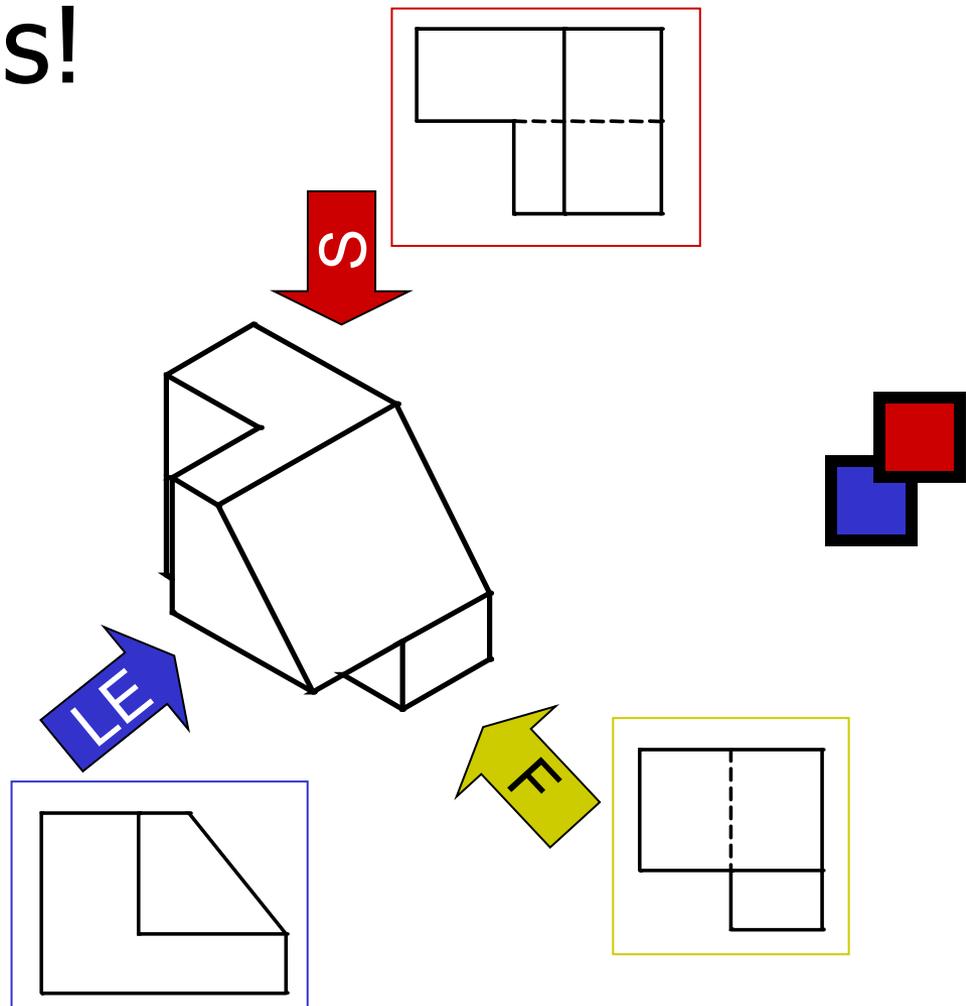




# Arestas ocultas!

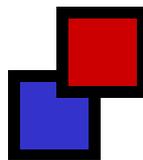
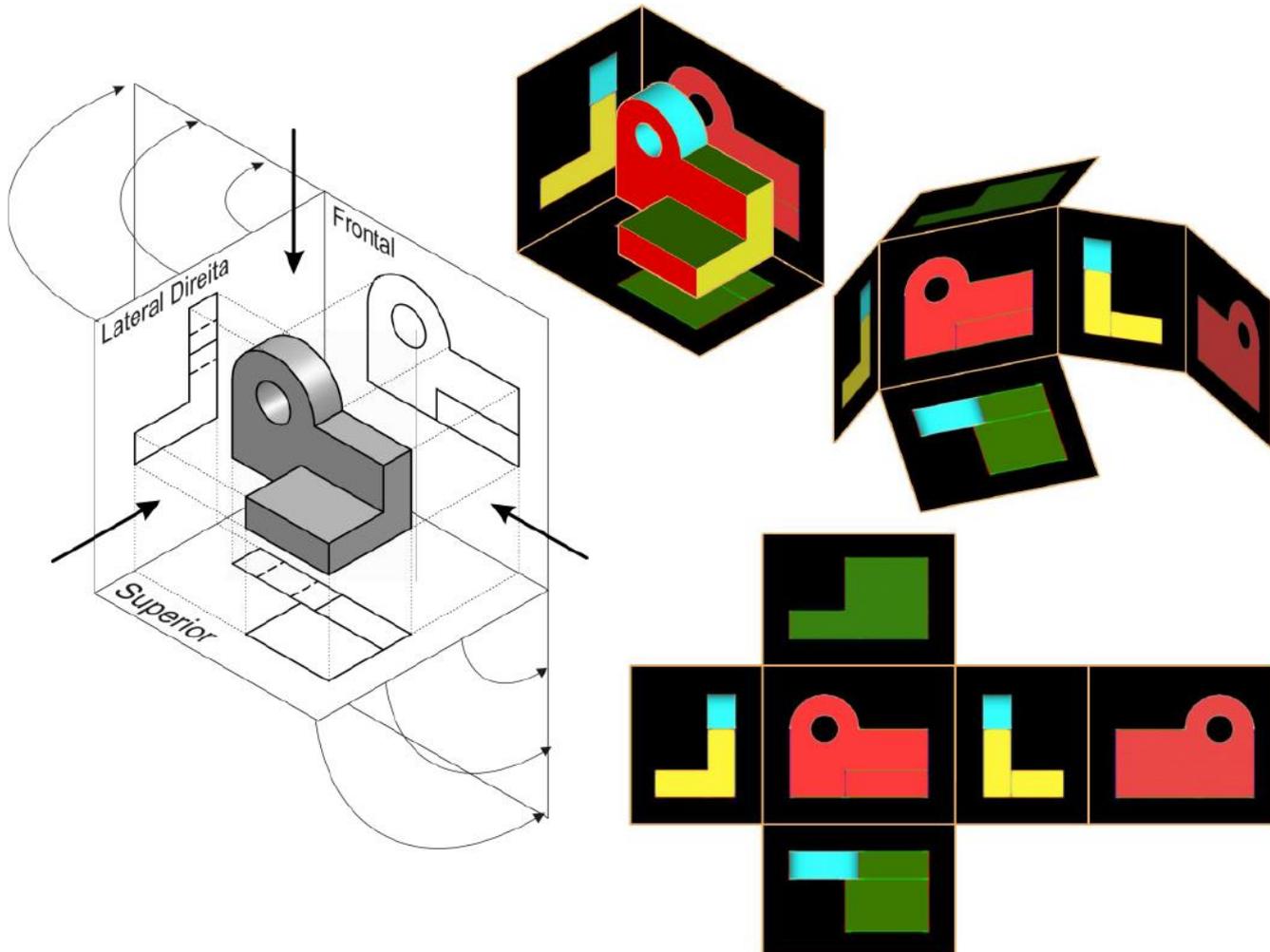


- Representadas por linhas tracejadas
  - Sobreposição de aresta visível e oculta: linha contínua.



# Posição das vistas (1º diedro)

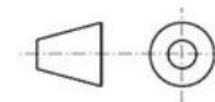
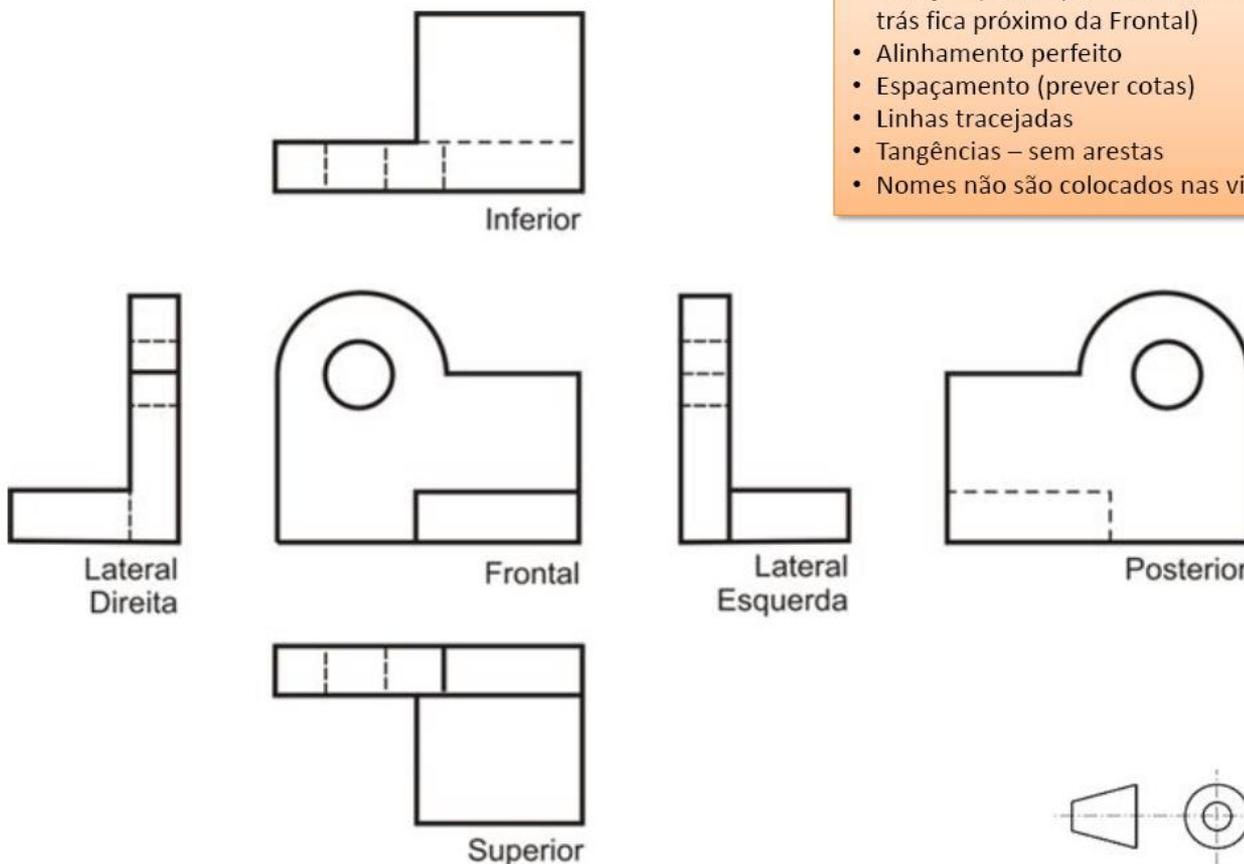
15/29

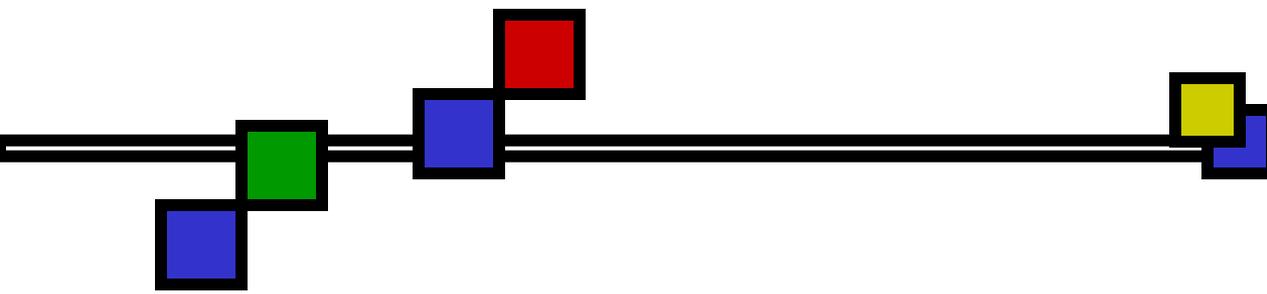


# Posição das vistas (1º diedro)

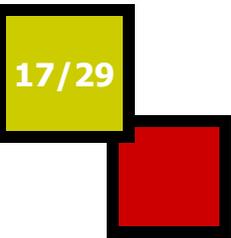
16/29

- Distribuição das vistas (diedro)
- Posição (ex: no primeiro diedro parte trás fica próximo da Frontal)
- Alinhamento perfeito
- Espaçamento (prever cotas)
- Linhas tracejadas
- Tangências – sem arestas
- Nomes não são colocados nas vistas

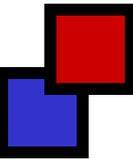


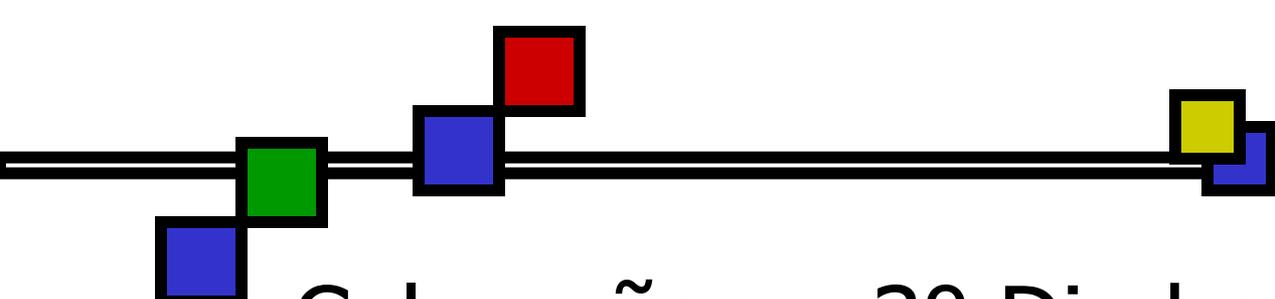


# Vistas Principais



- Normalmente usam-se, no máximo, 3 vistas já que as vistas análogas são idênticas com exceção de:
  - vistas são simétricas (S/I, F/P, E/D);
  - a visibilidade de arestas internas pode mudar

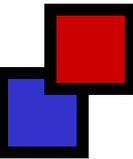
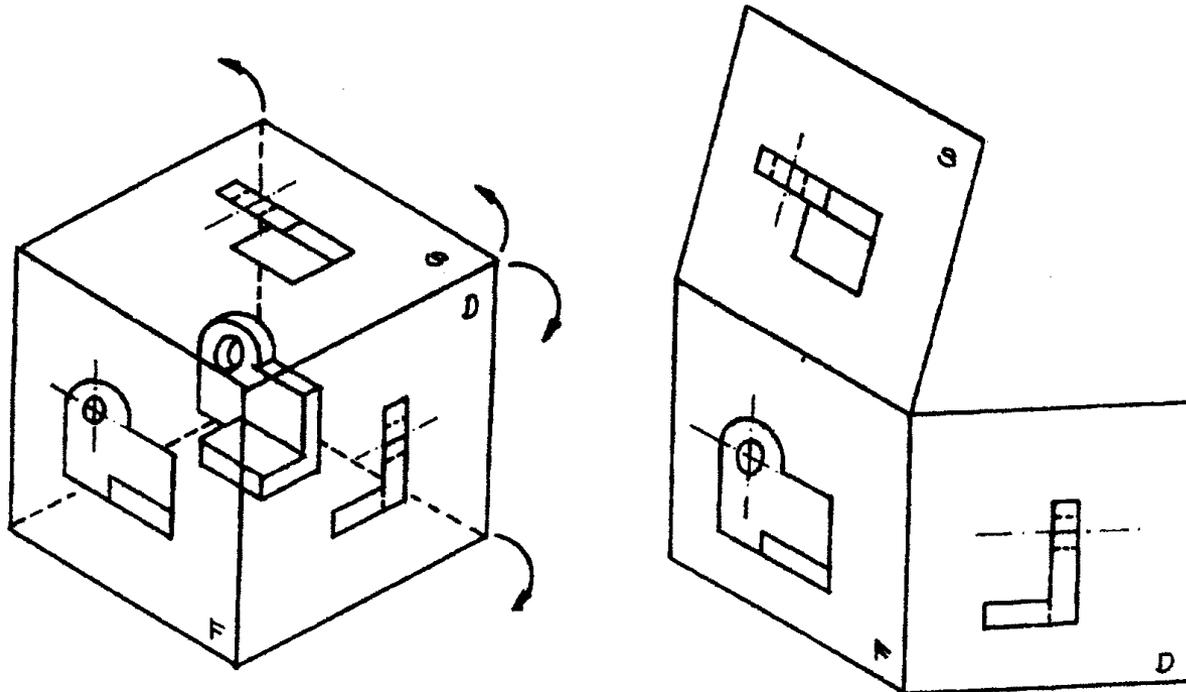


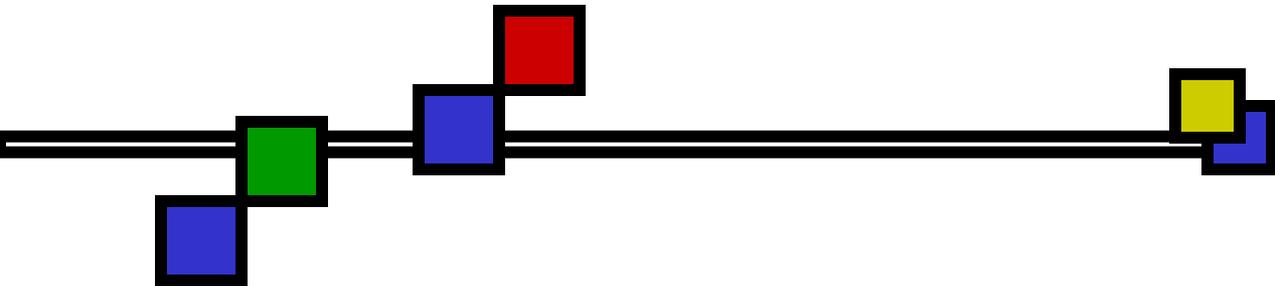


# Colocação no 3º Diedro

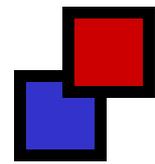
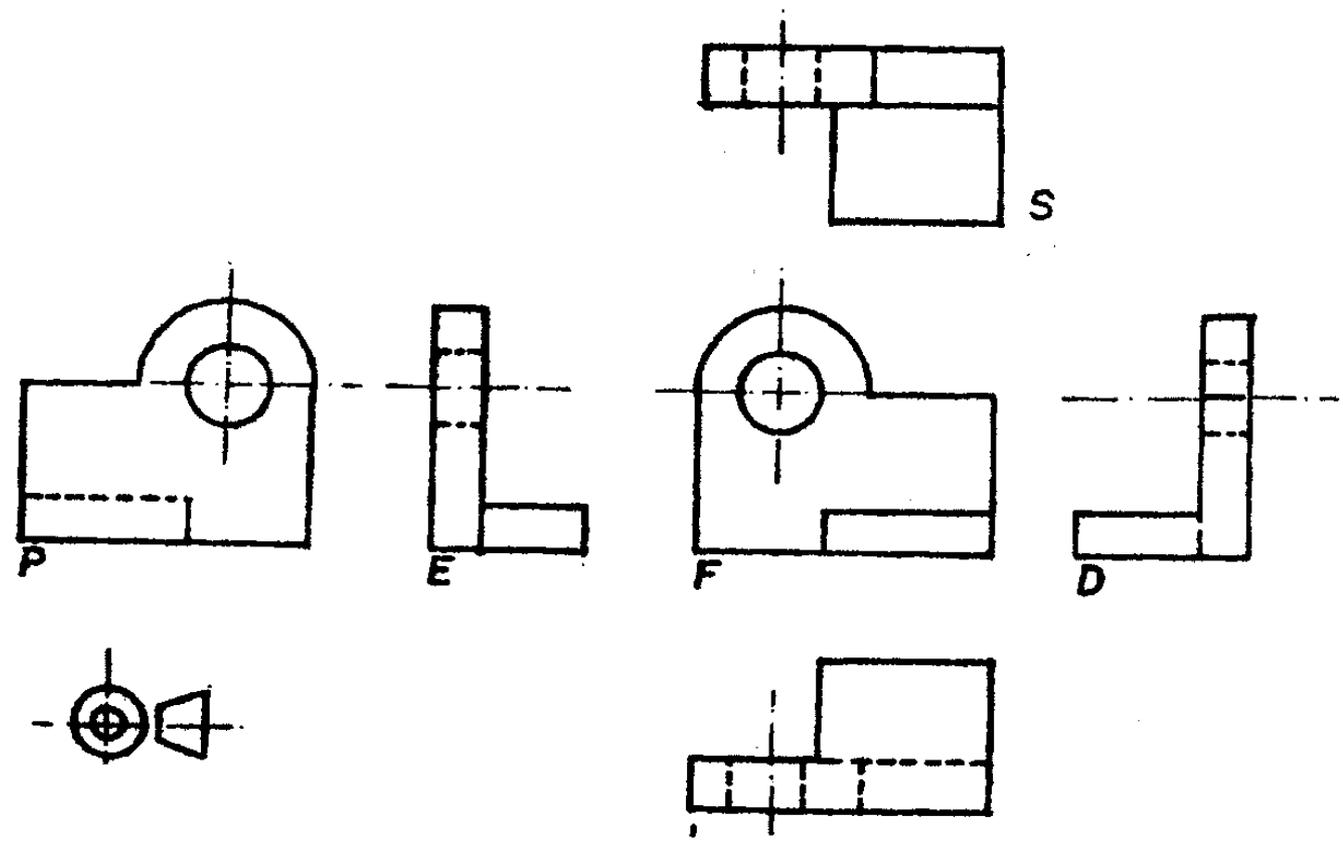
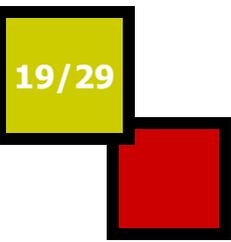
- Ordem: Observador – Plano - Objeto

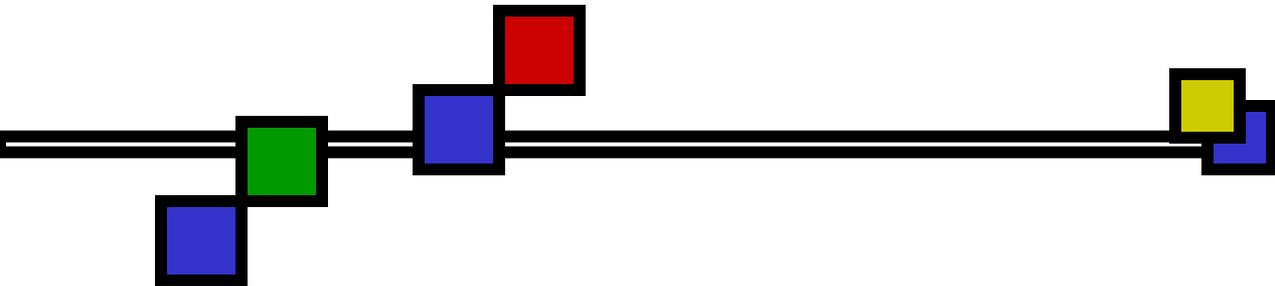
18/29



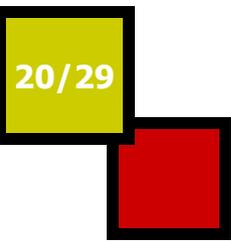


# Posição das vistas (3º diedro)

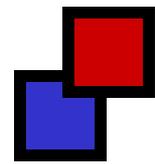


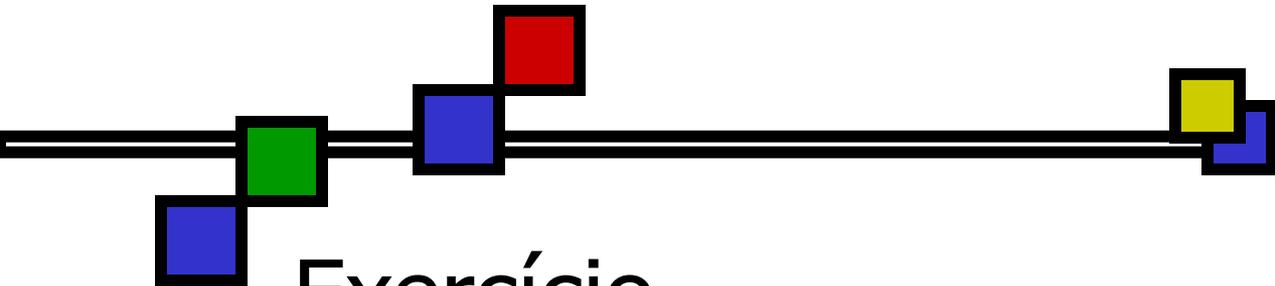


# 1º Diedro x 3º Diedro

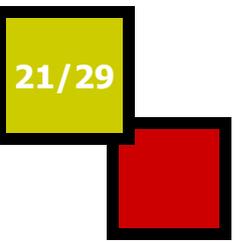


1º DIEDRO	3º DIEDRO
+ pode-se usar a "técnica do tombo";	+ visualização como "aquário"; + as vistas ficam em posições "certas";
- as vistas ficam em posições trocadas;	- não se pode usar a "técnica do tombo"

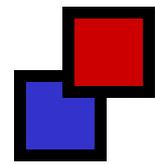
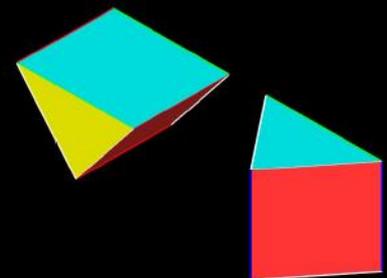
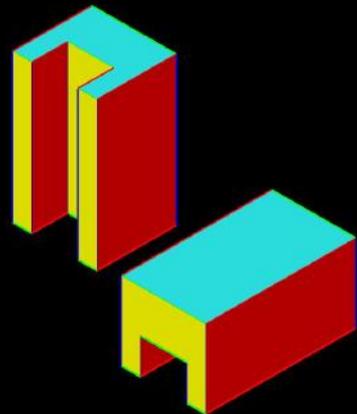
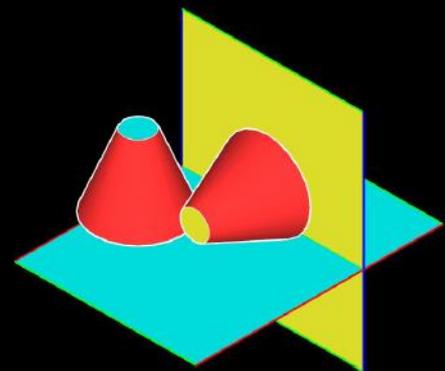
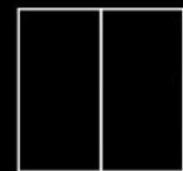
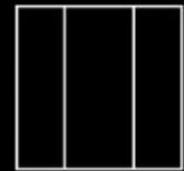
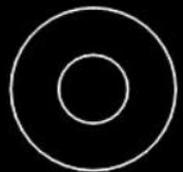
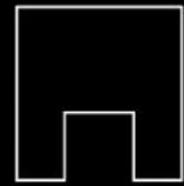
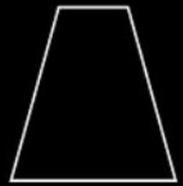


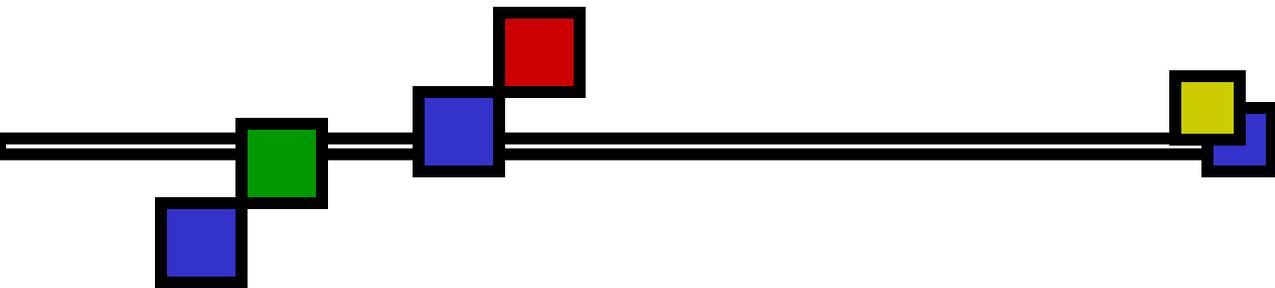


# Exercício



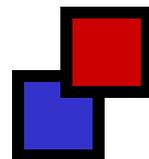
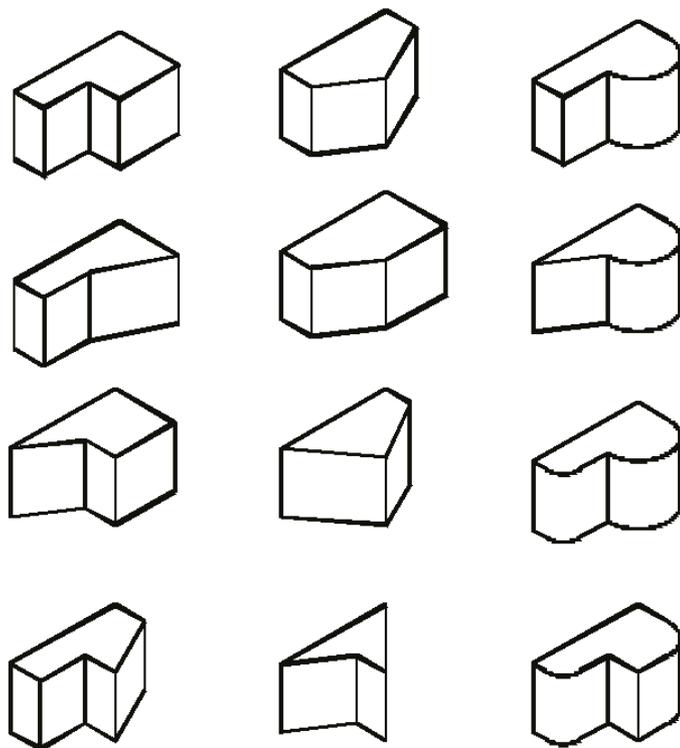
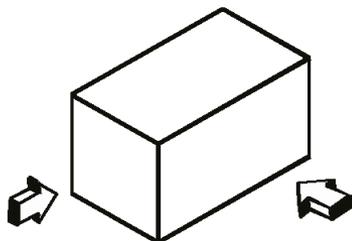
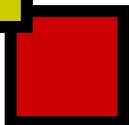
Em que diedro estão representados os objetos abaixo?

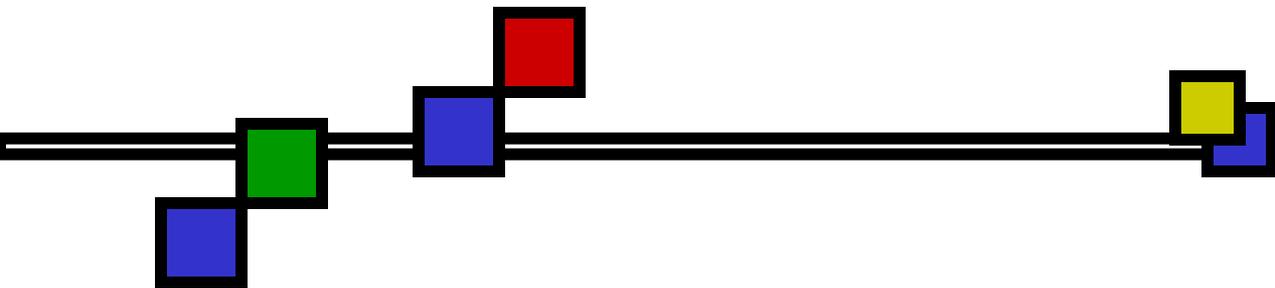




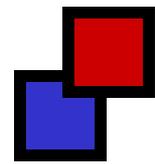
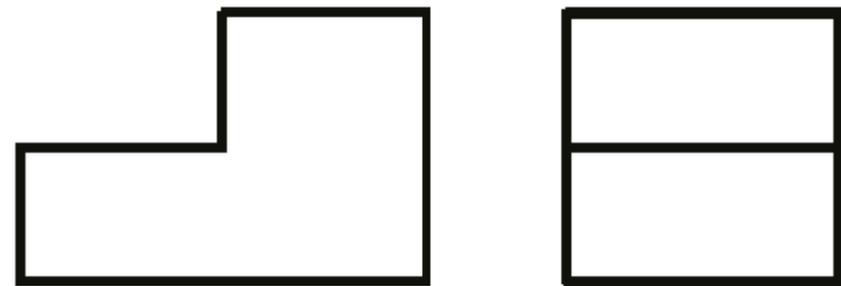
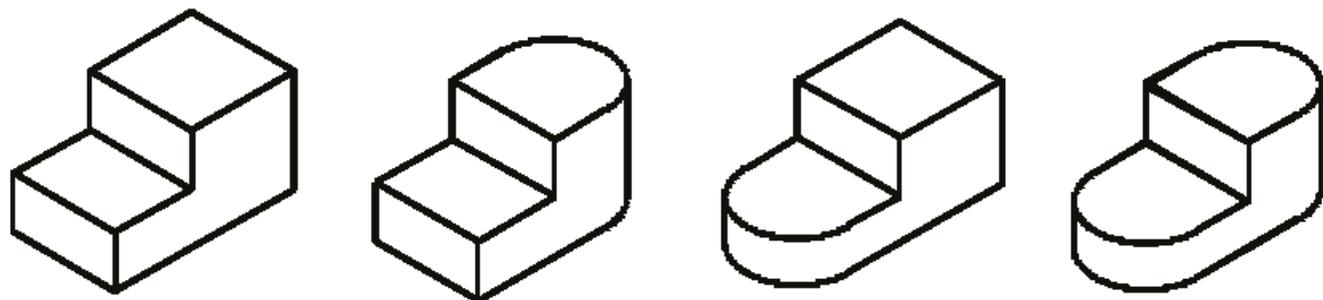
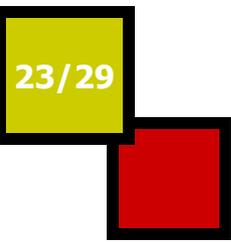
Para "ler" V.O., seja criativo...

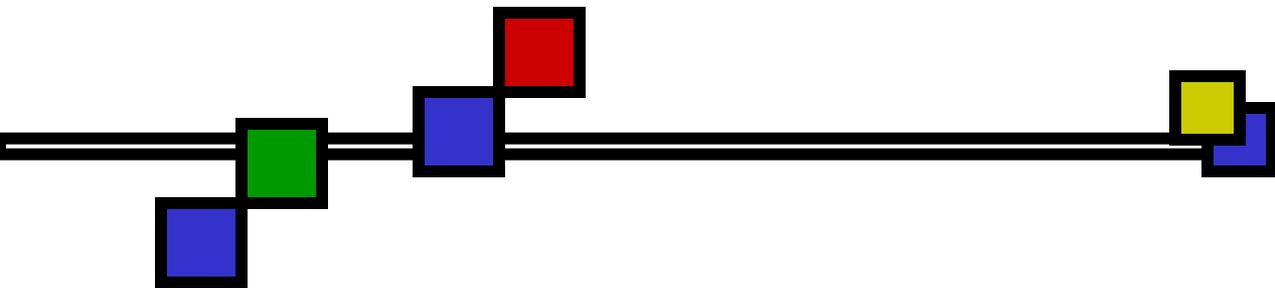
22/29



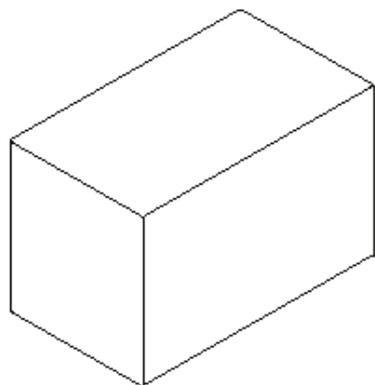
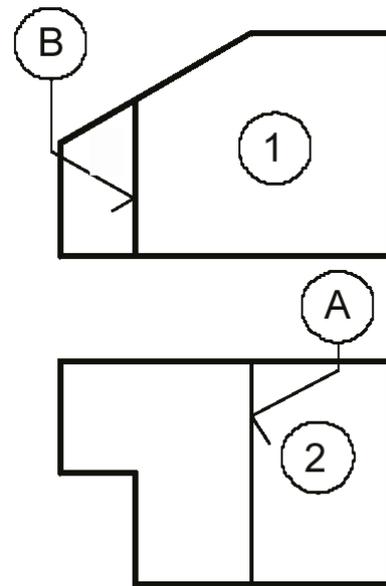
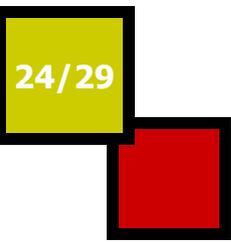


Outro exemplo...

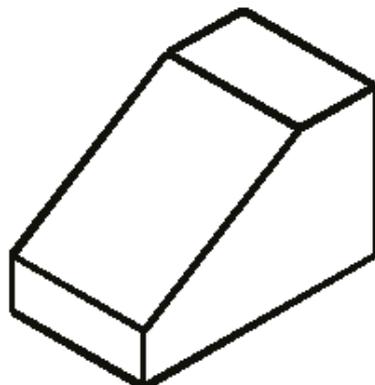




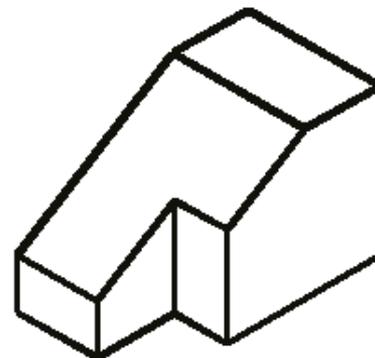
# Cortando sabão...



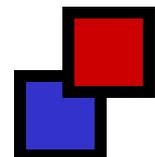
PASSO 1

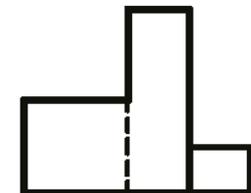
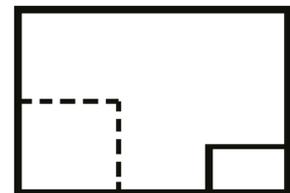
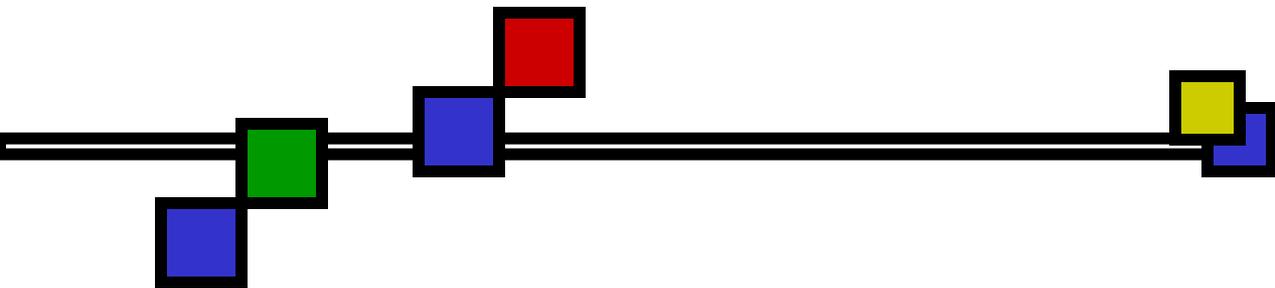


PASSO 2

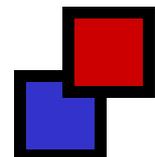
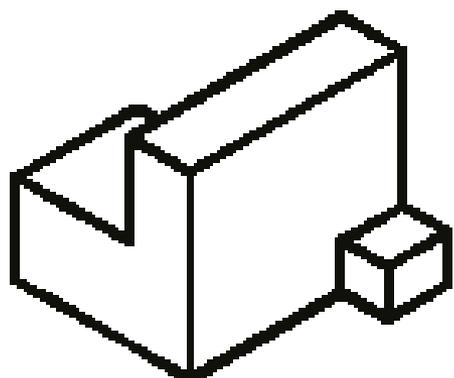
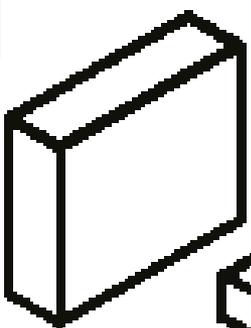
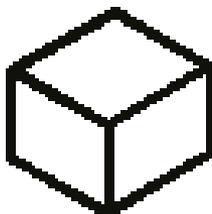
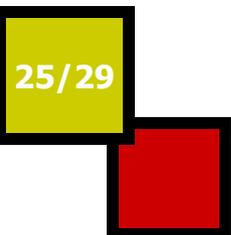
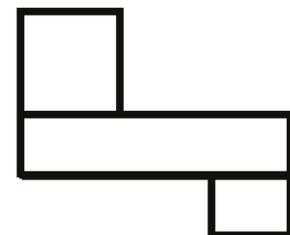


PASSO 3





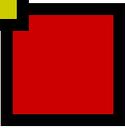
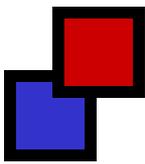
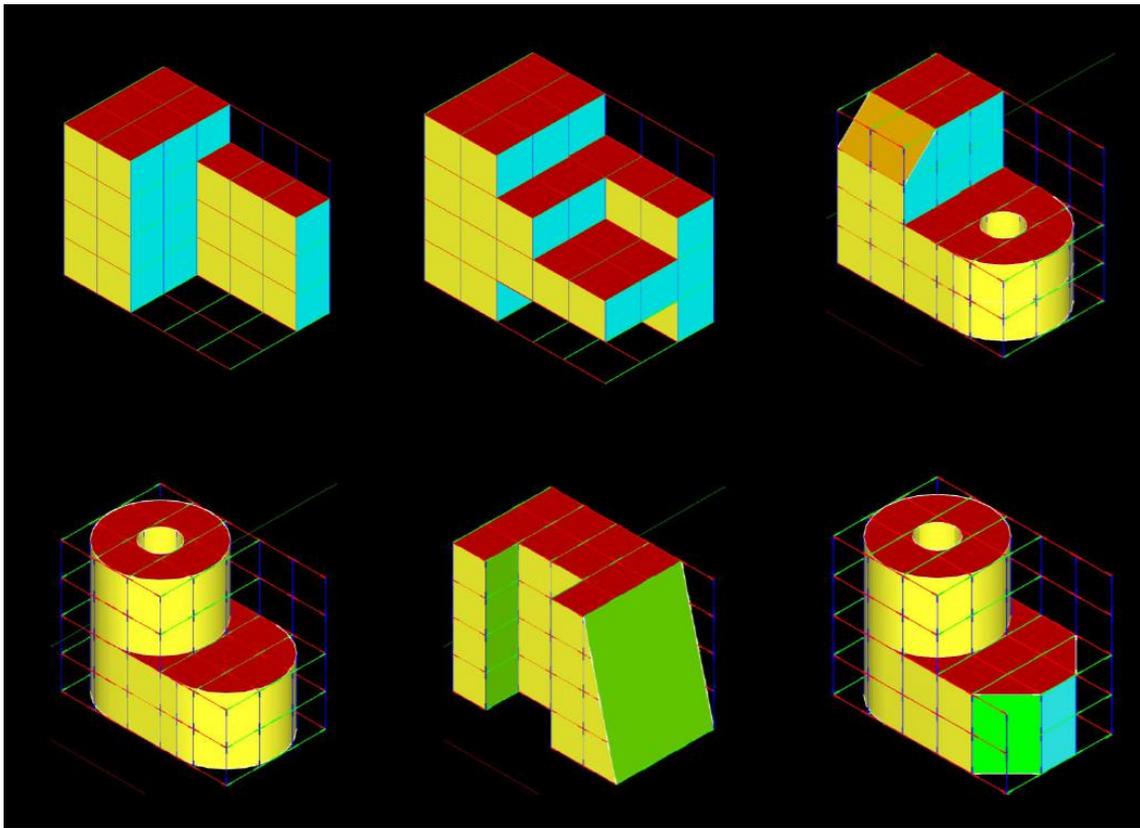
Justapondo blocos...





# Exercícios em Sala de Aula

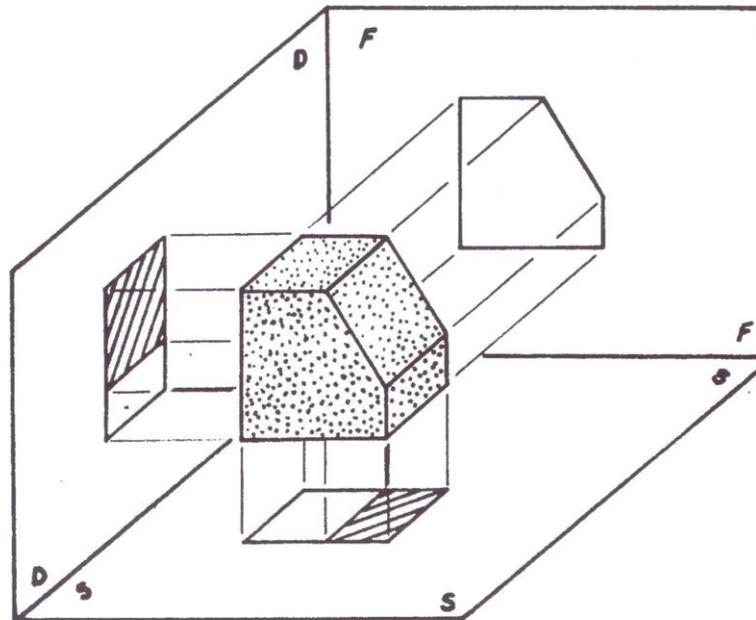
26/29

A yellow square containing the text '26/29' and a red square positioned below it.

# Vistas Ortográficas Principais

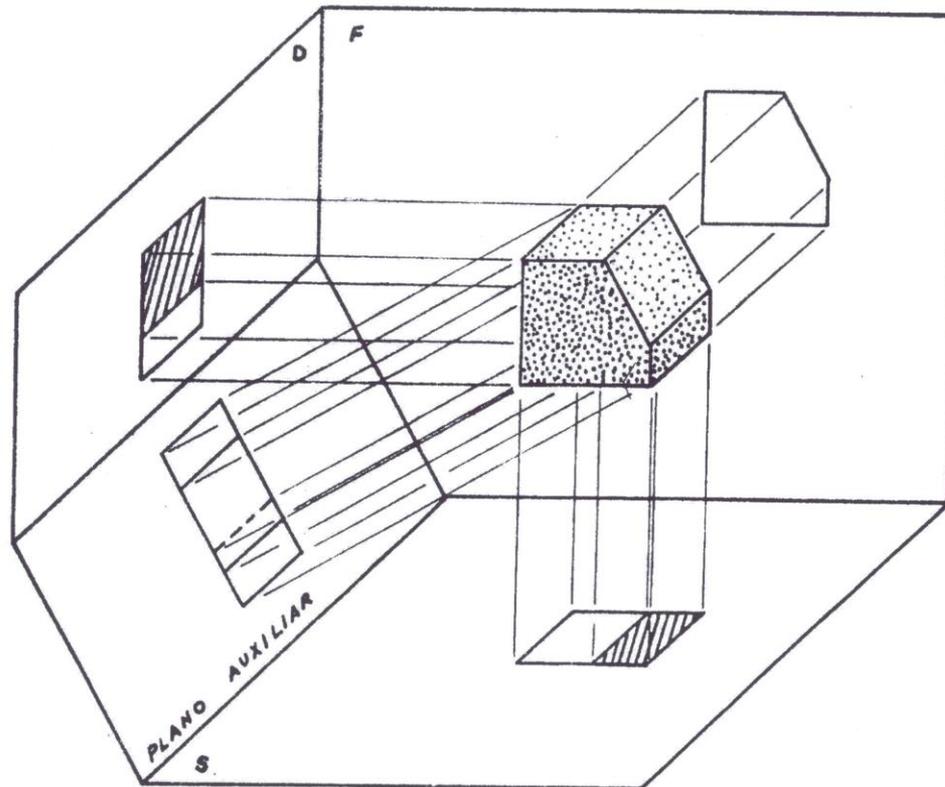
27/29

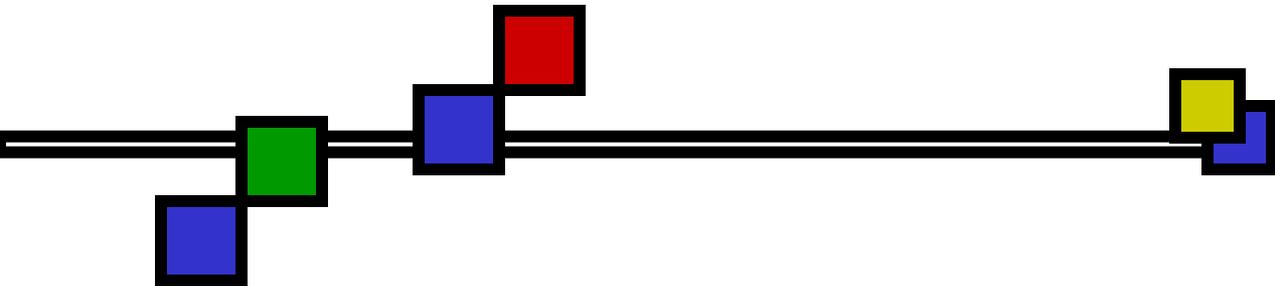
*Vistas Ortográficas Principais*



# Vistas Ortográficas Auxiliares

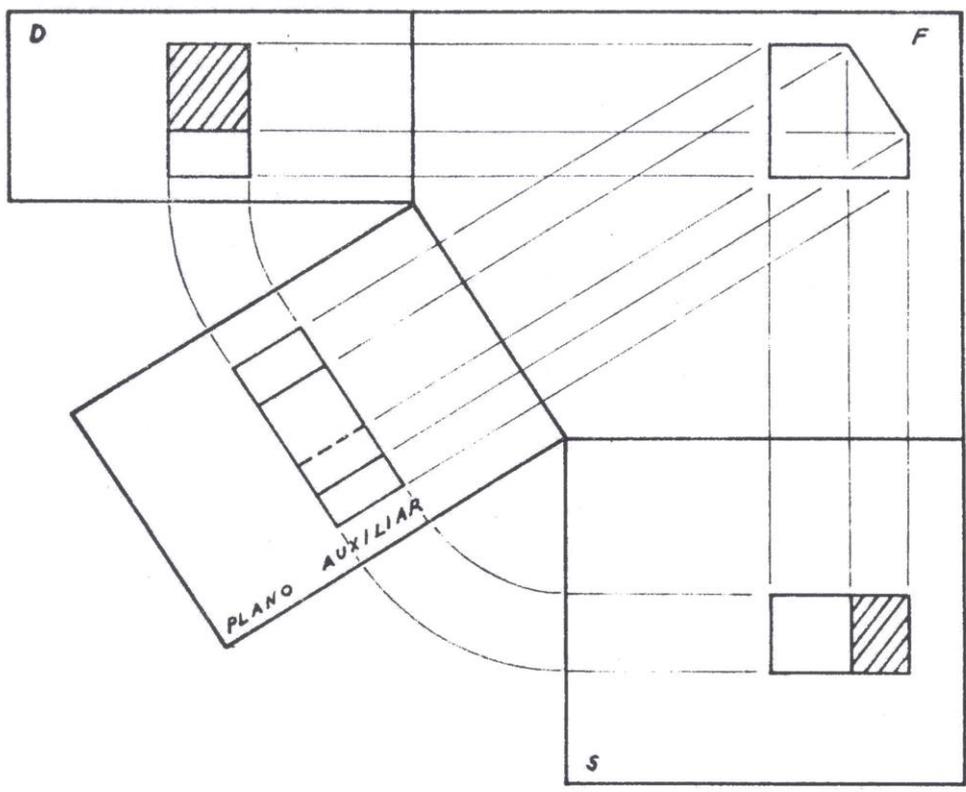
28/29





29/29

A yellow square with the text "29/29" inside, and a red square positioned below it.

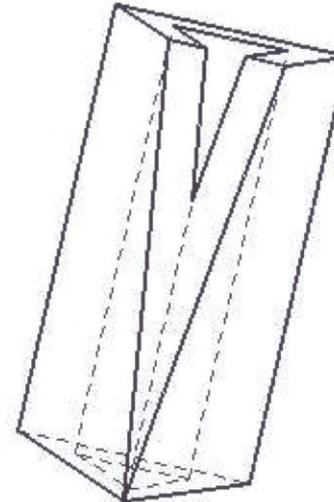
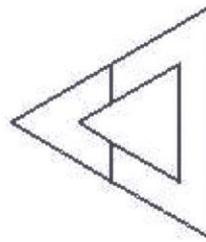
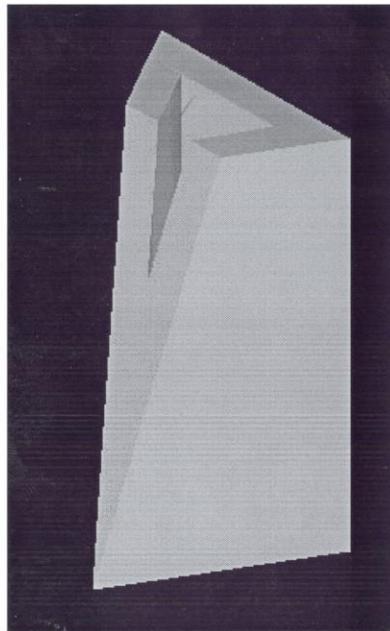


A blue square and a red square positioned next to each other.

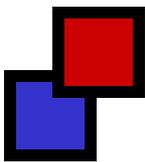


# VG da face inclinada -> Vista Auxiliar

30/29



*Vista Auxiliar*  
*VG da face inclinada*

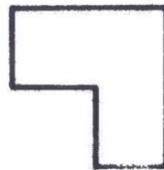
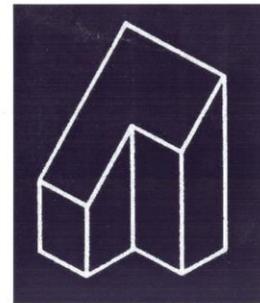


# Como obter a vista auxiliar?

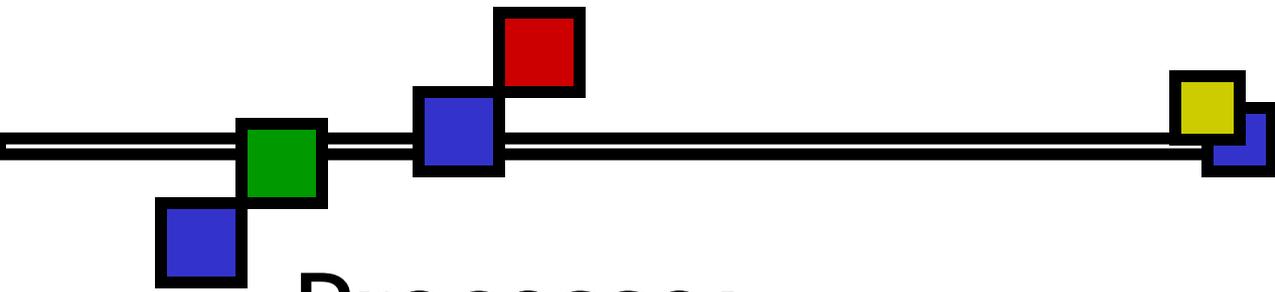
31/29



FRONTAL



SUPERIOR



Processo:

