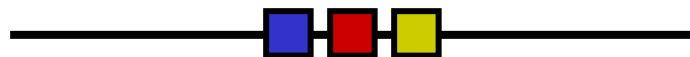


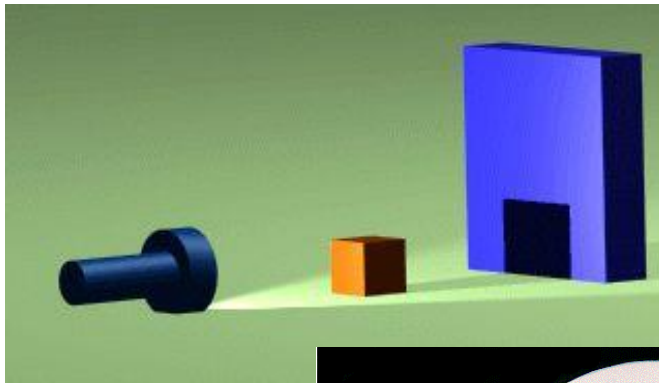
# Geometria Descritiva I

Pontos e Retas

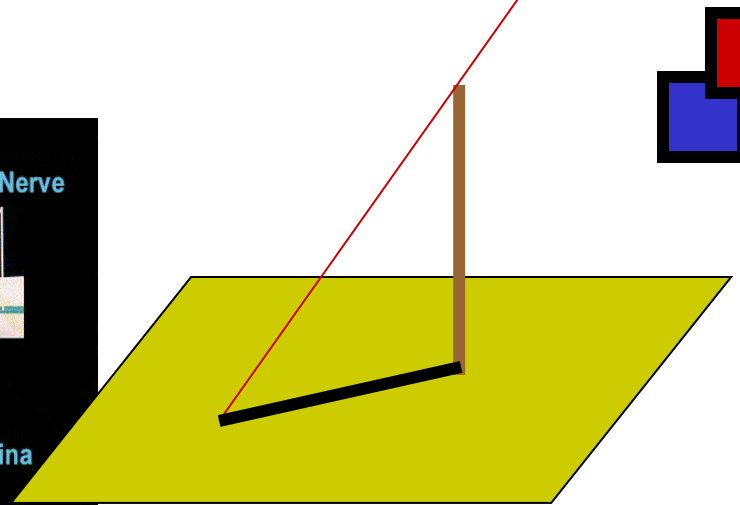
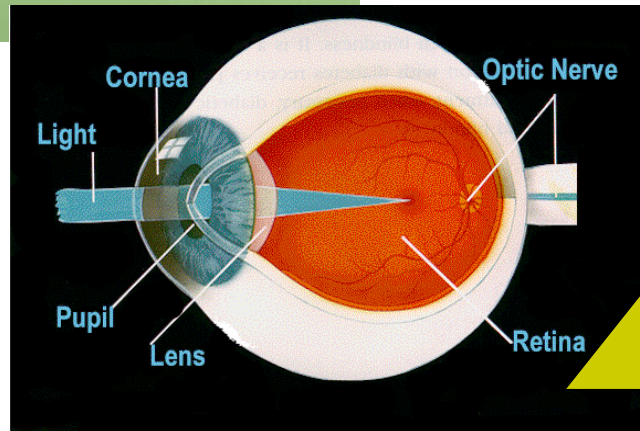


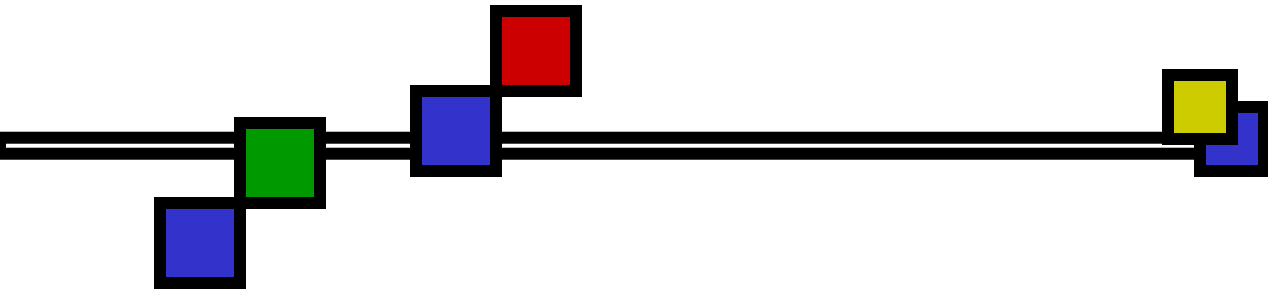
**PCC3100 Mecatrônica – Representação  
Gráfica para Projeto**

# Conceito de Projeção

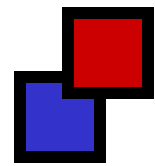
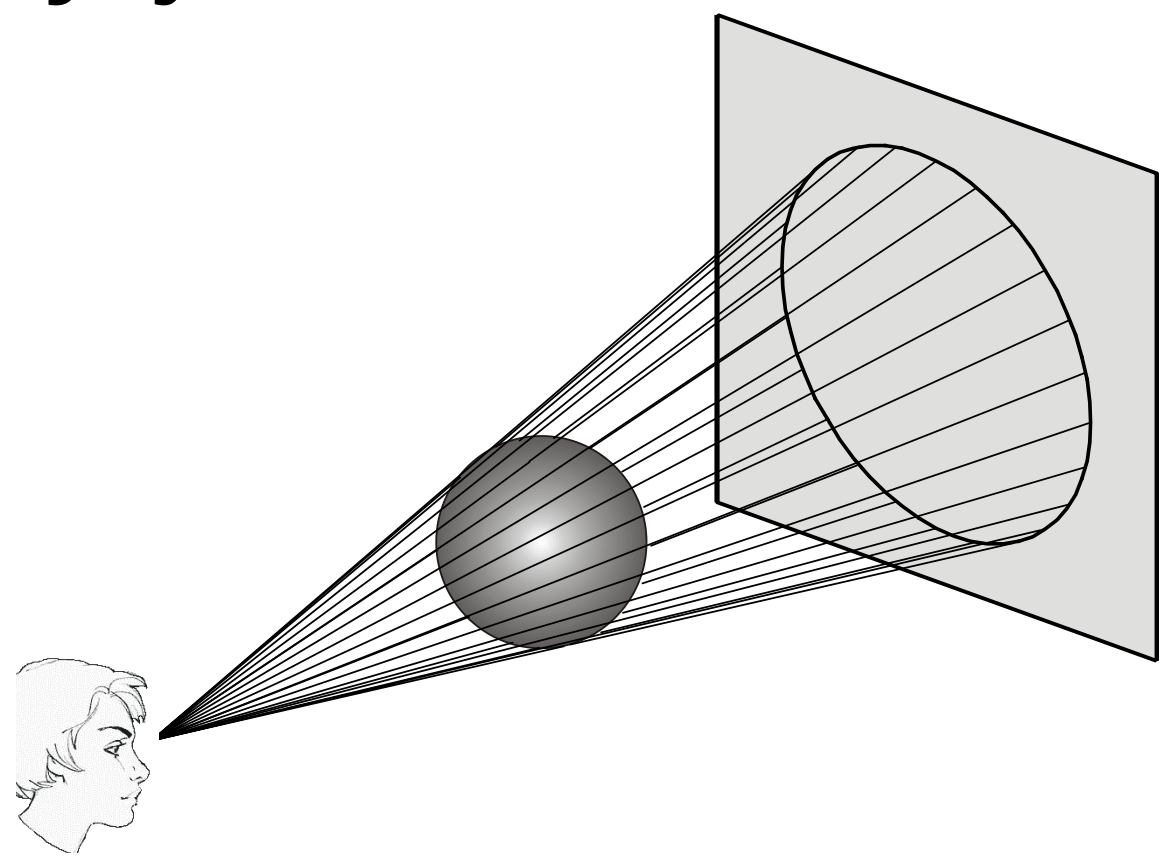
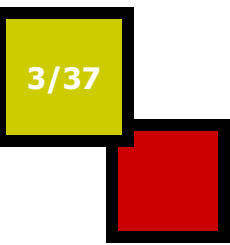


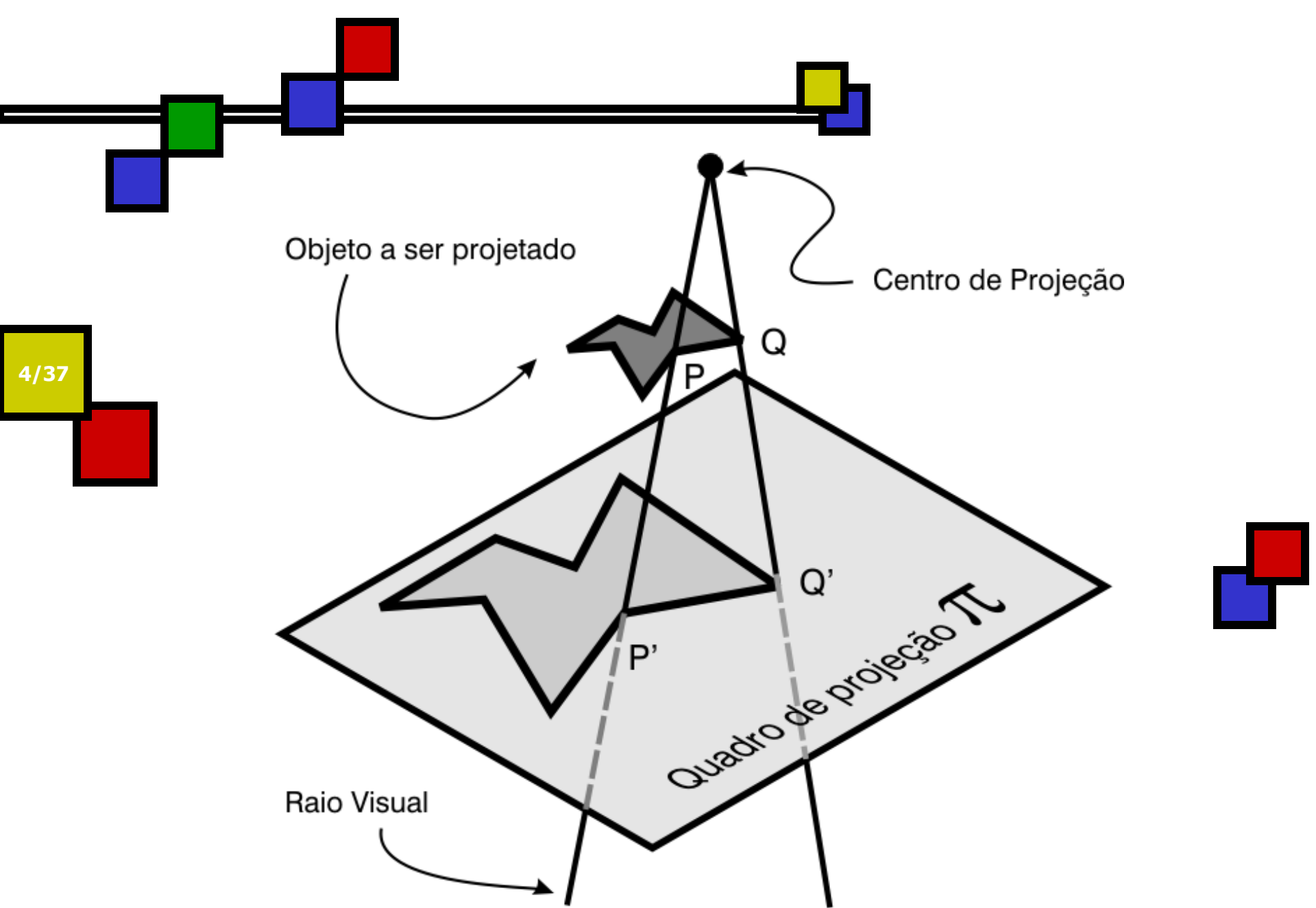
**3D** → **2D**



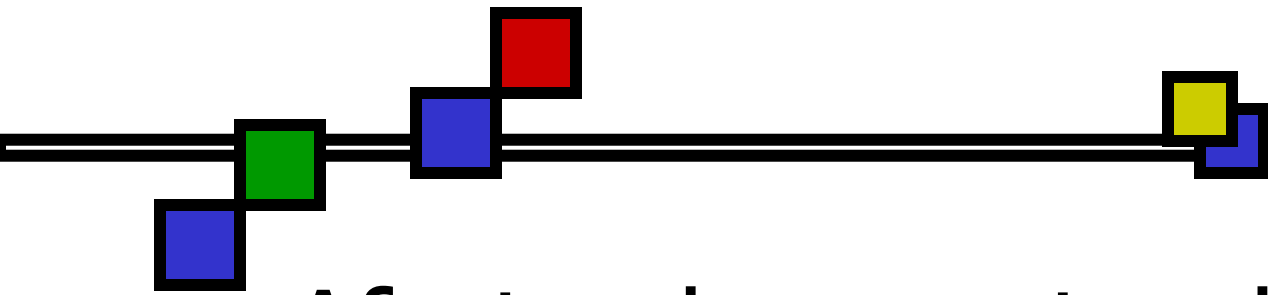


# Projeção Cônica

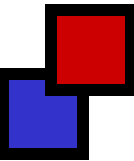
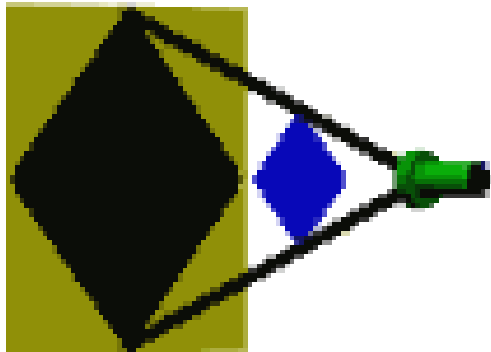
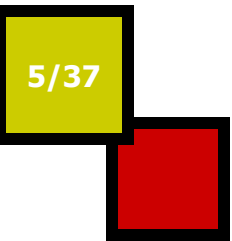


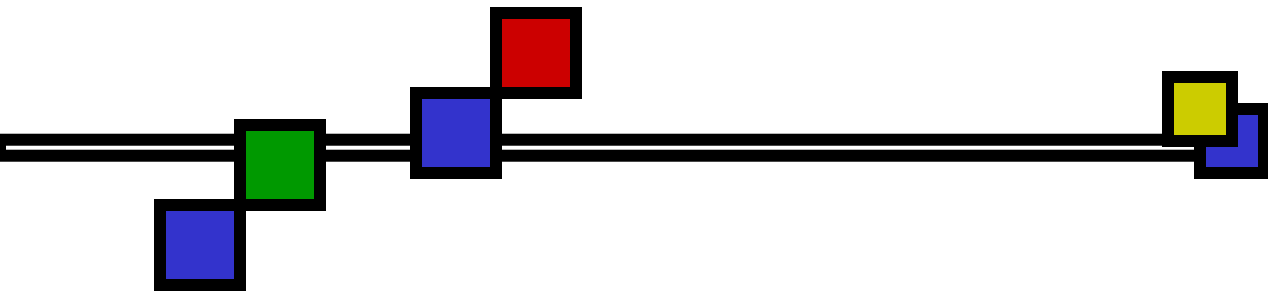


**Elementos principais dos Sistemas de Projeção.**

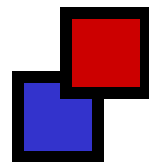
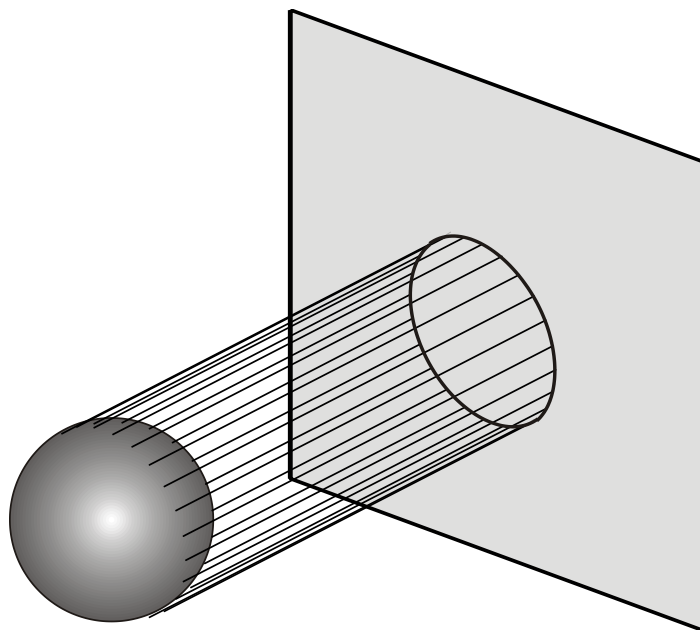
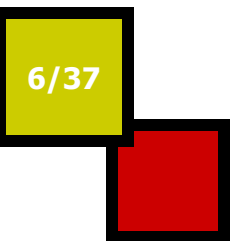


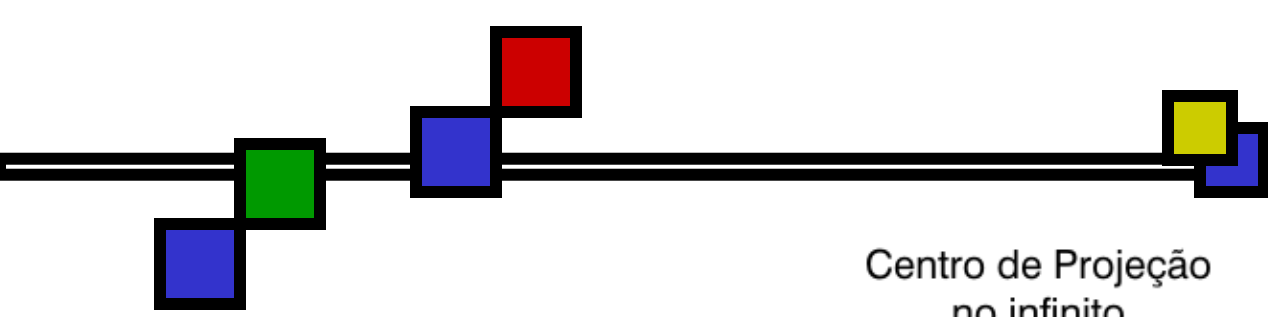
Afastando o centro de projeção...





# Projeção Cilíndrica

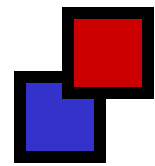
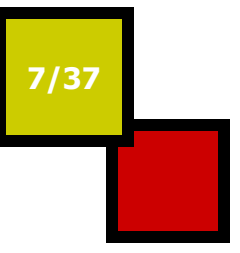
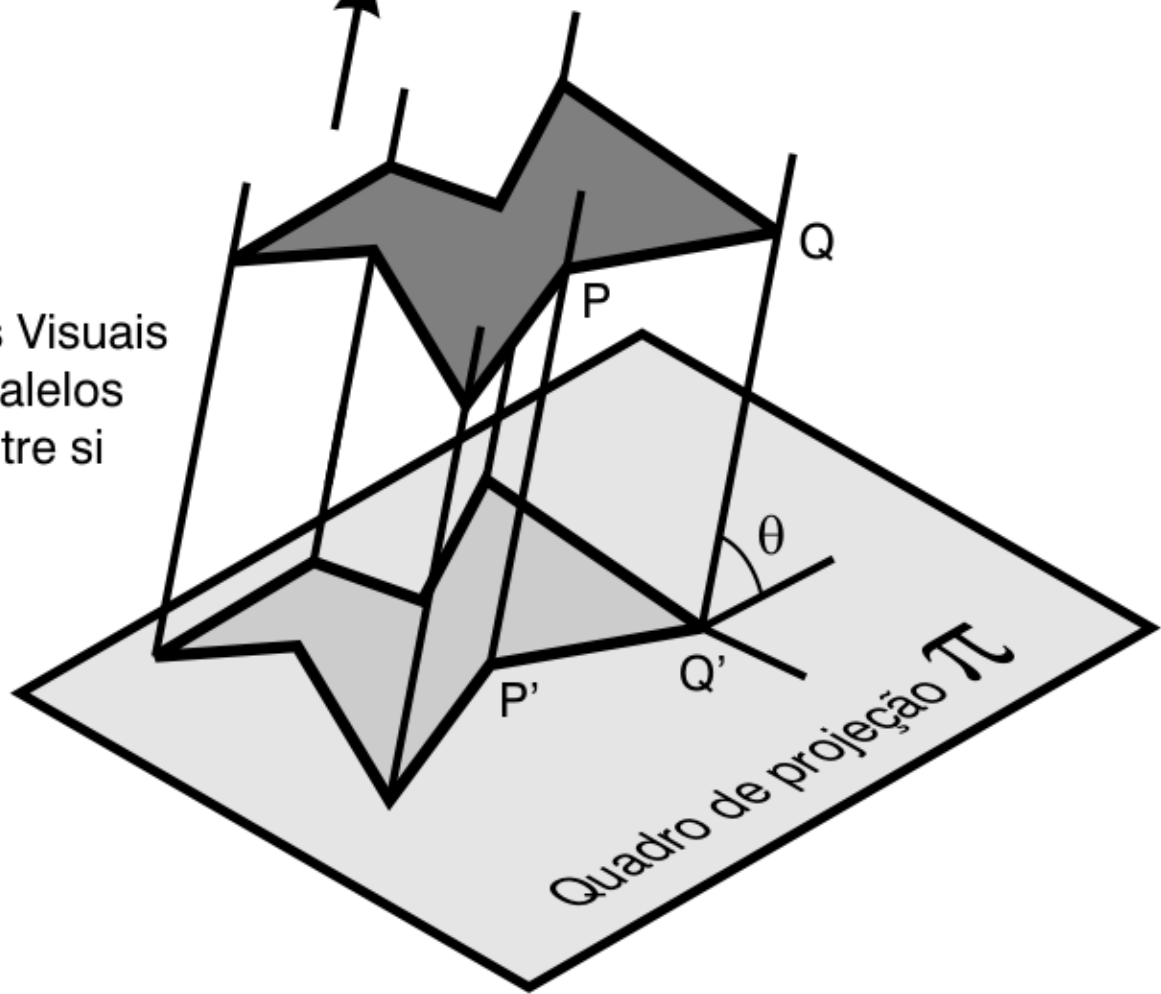




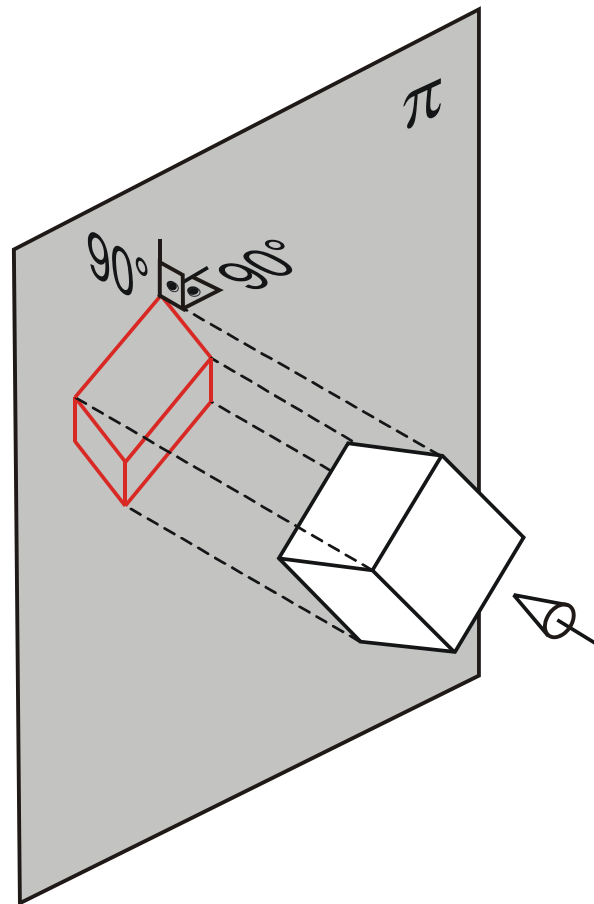
Centro de Projeção  
no infinito



Raios Visuais  
paralelos  
entre si



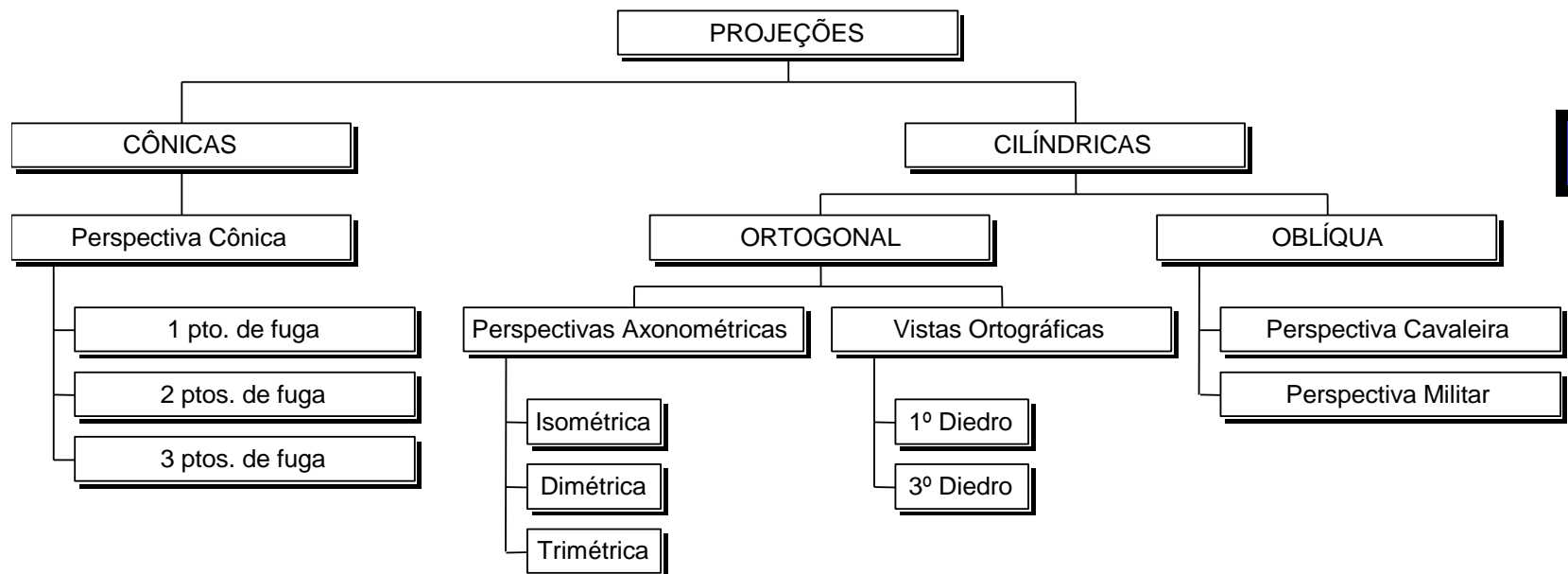
# Projeção Cilíndrica Ortogonal

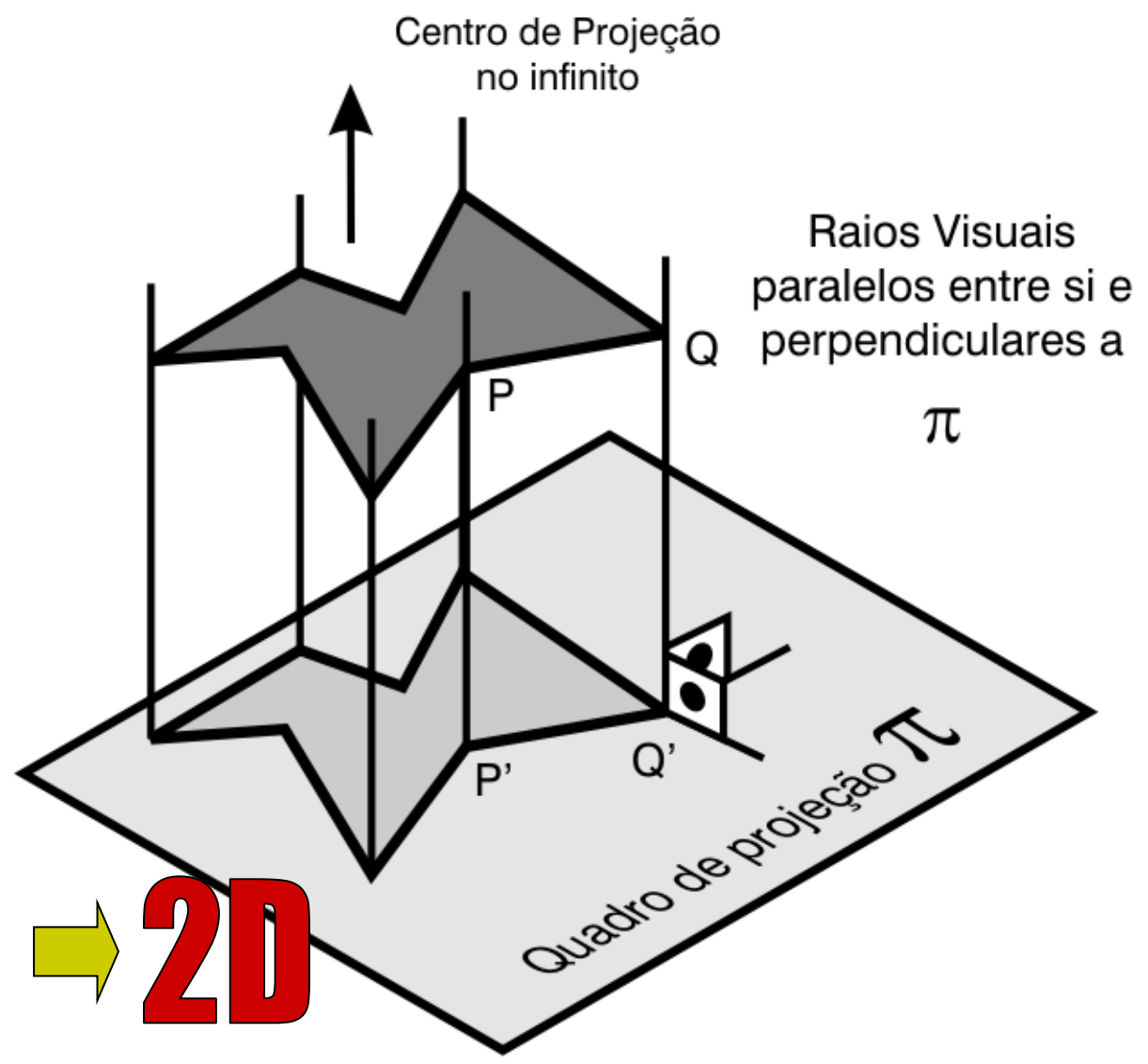
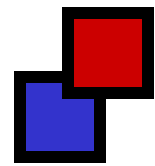
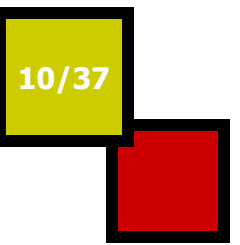
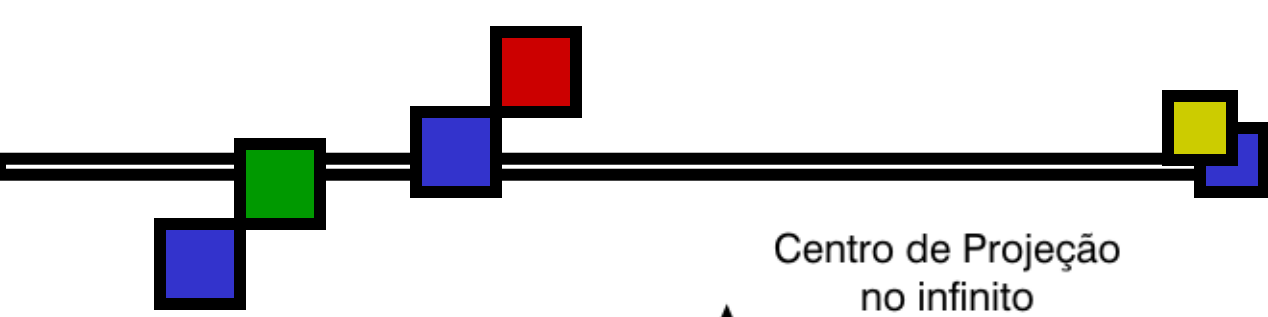




# Projeção e Perspectivas

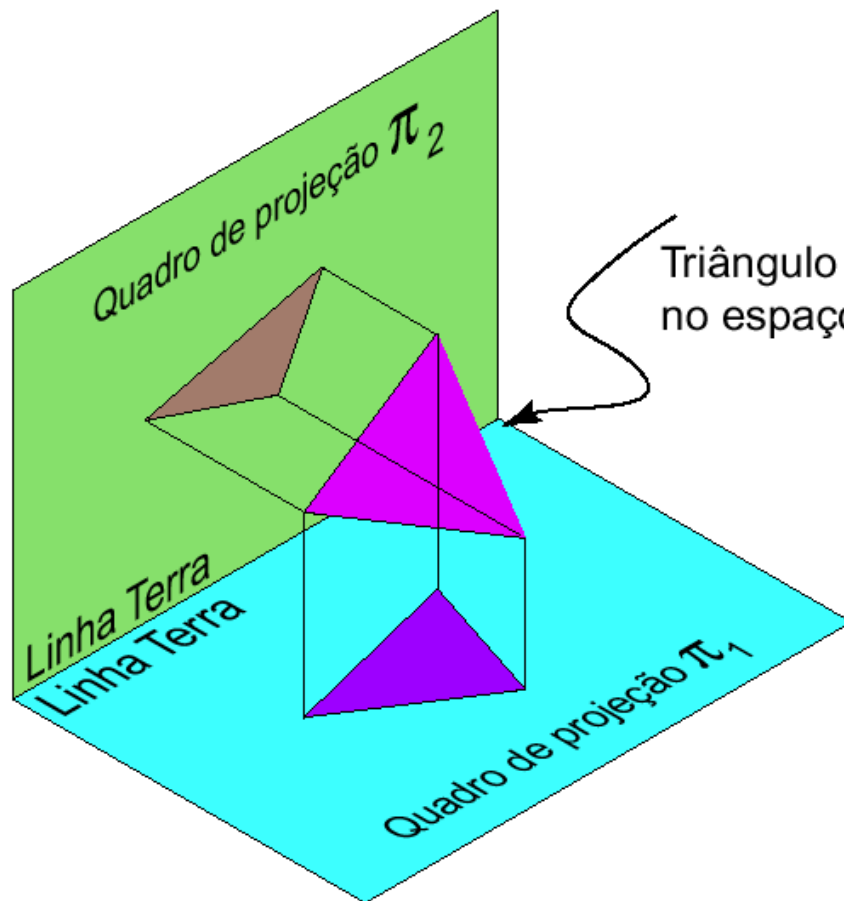
9/37



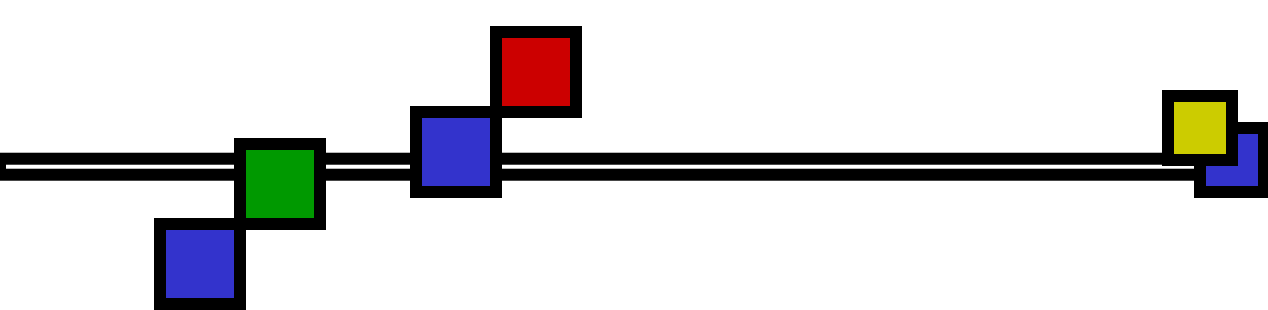


**3D** → **2D**

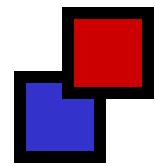
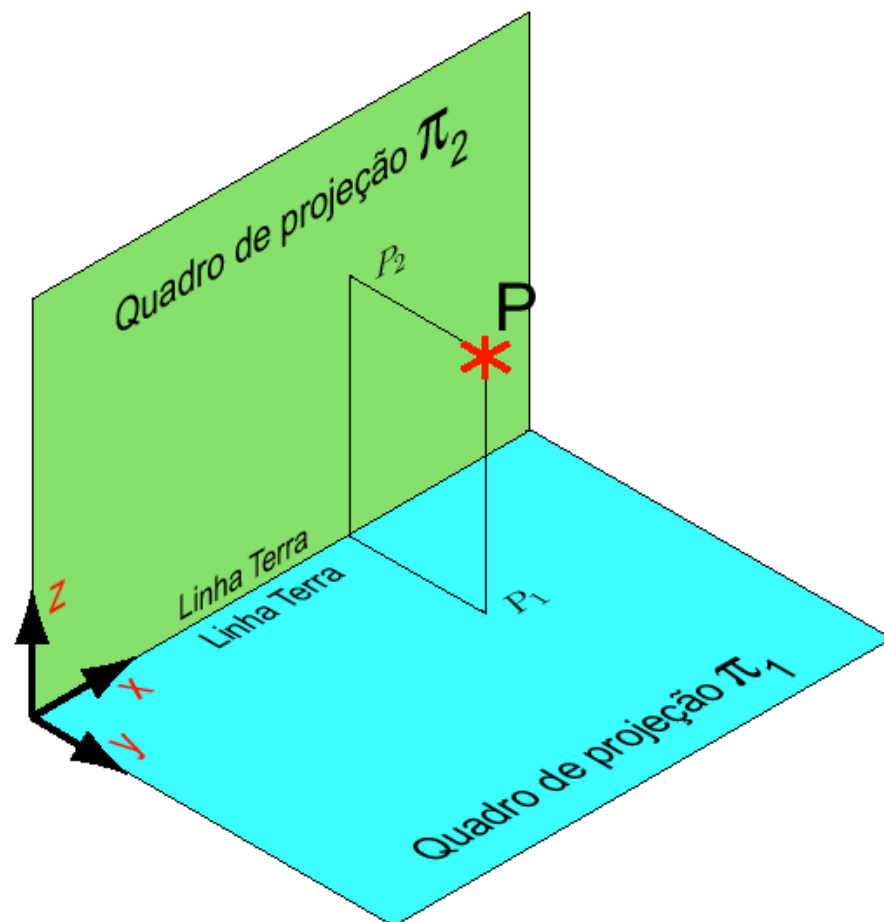
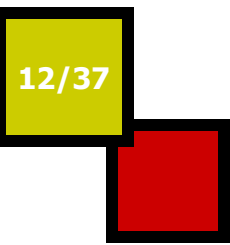
# Sistema de Projeção Mongeano

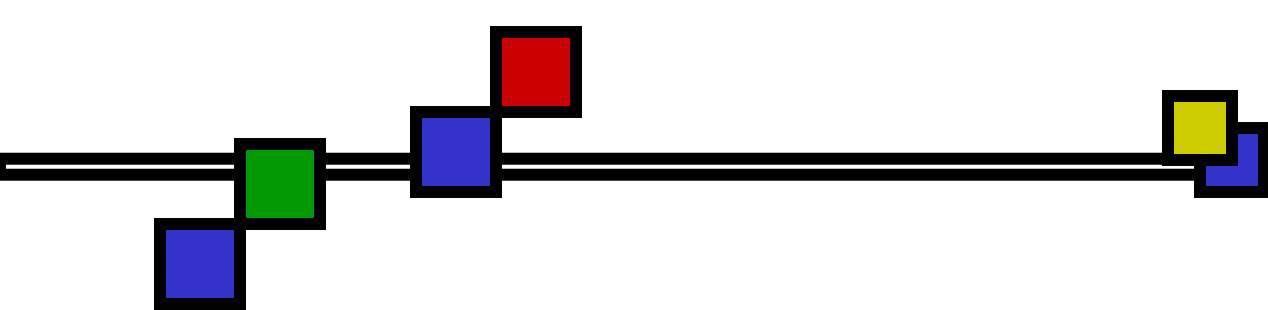


Triângulo  
no espaço

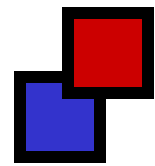
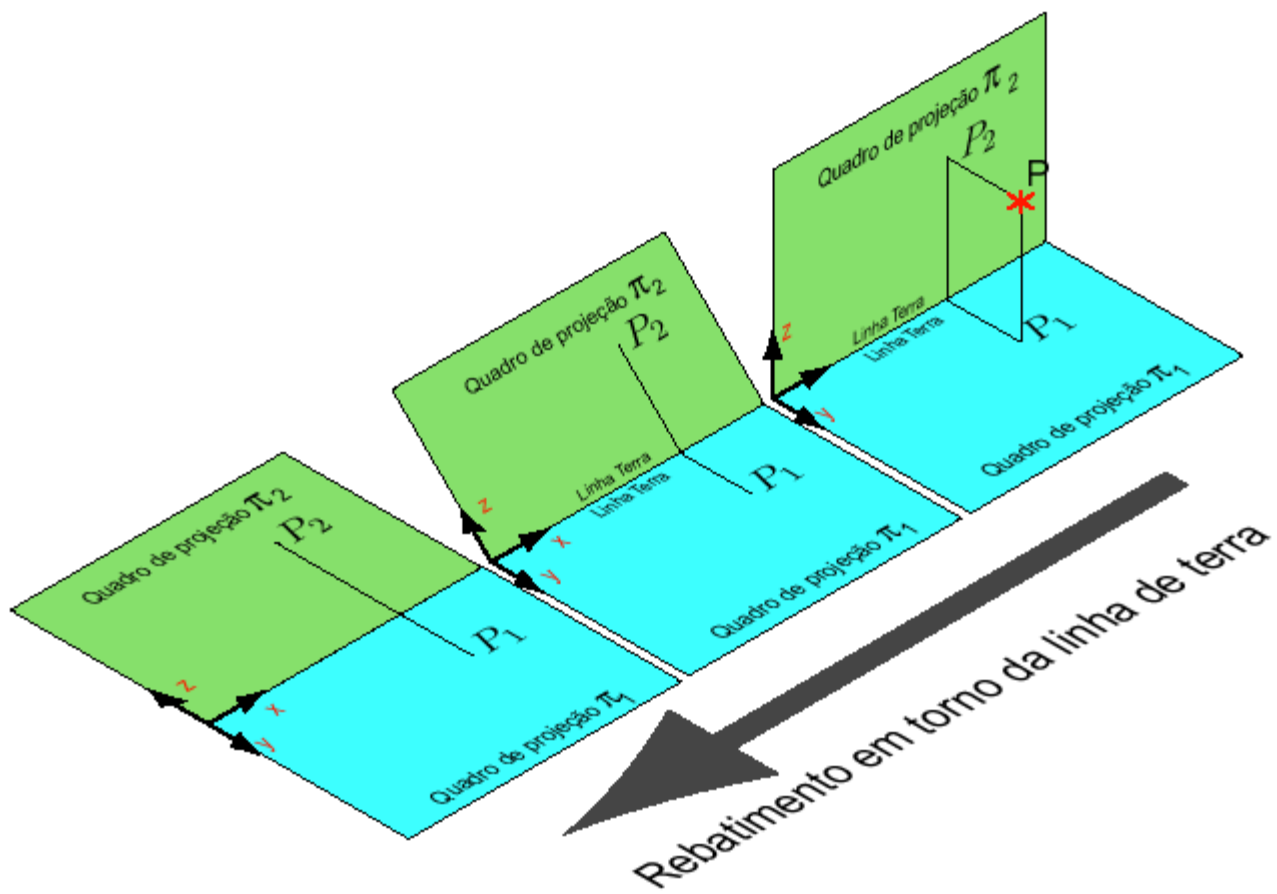
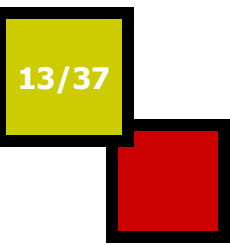


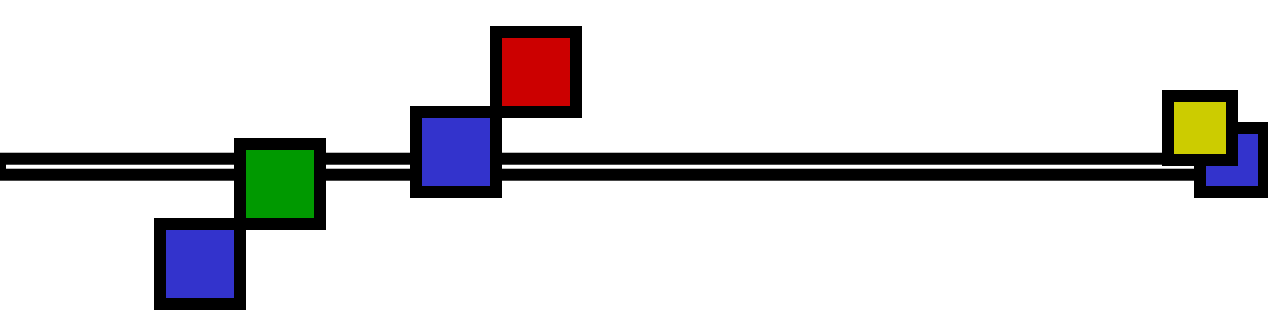
# Projeção de pontos



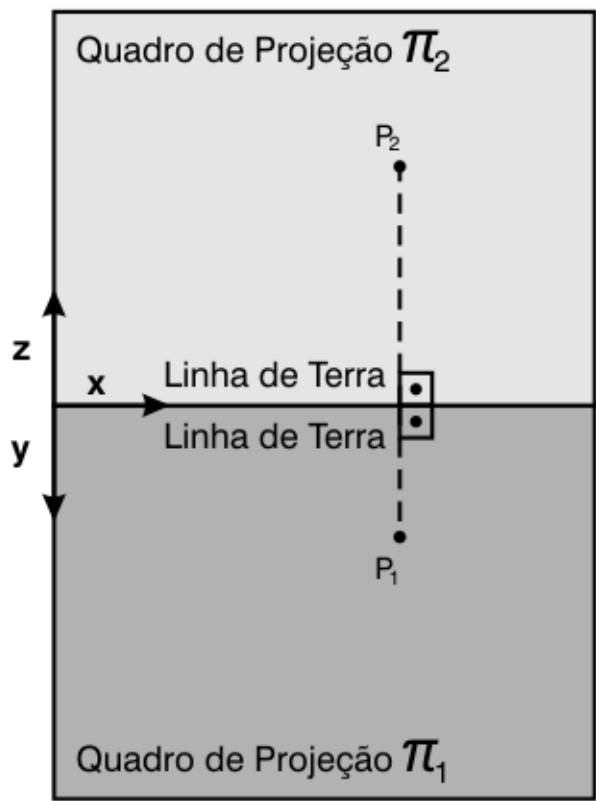
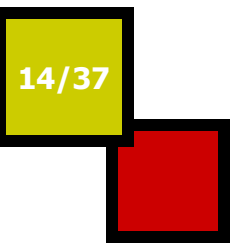


# Rebatimento no plano

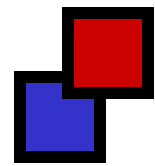
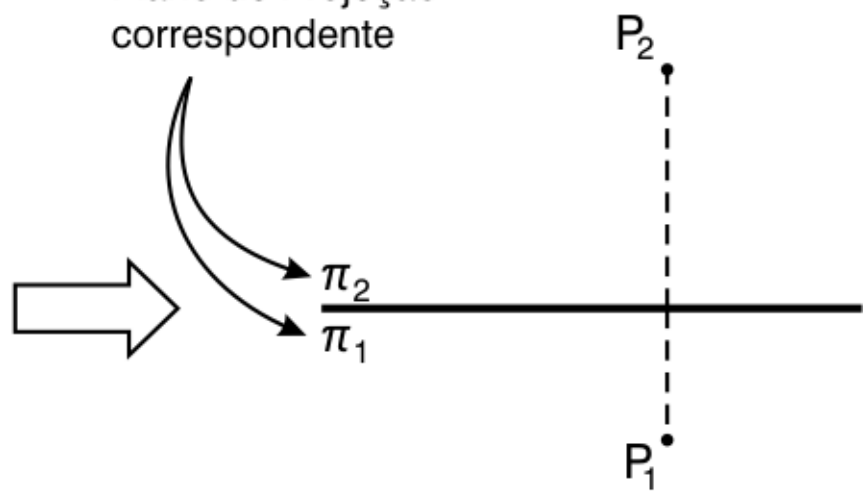


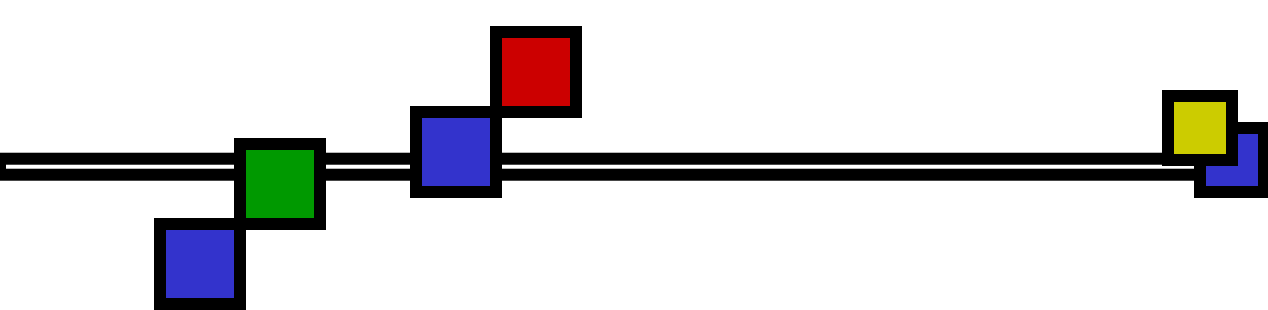


# Épura

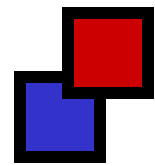
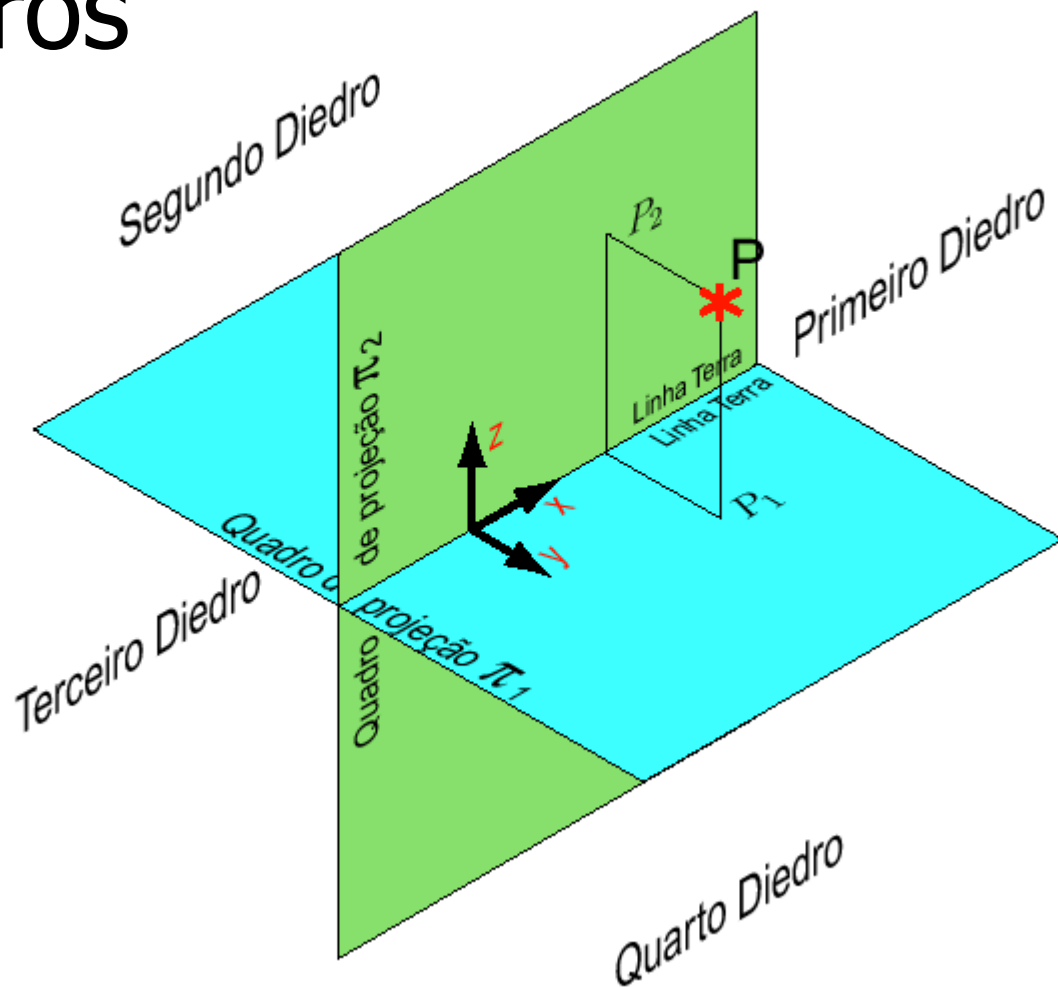
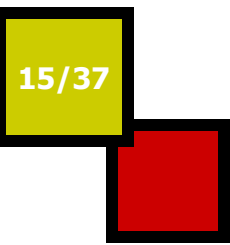


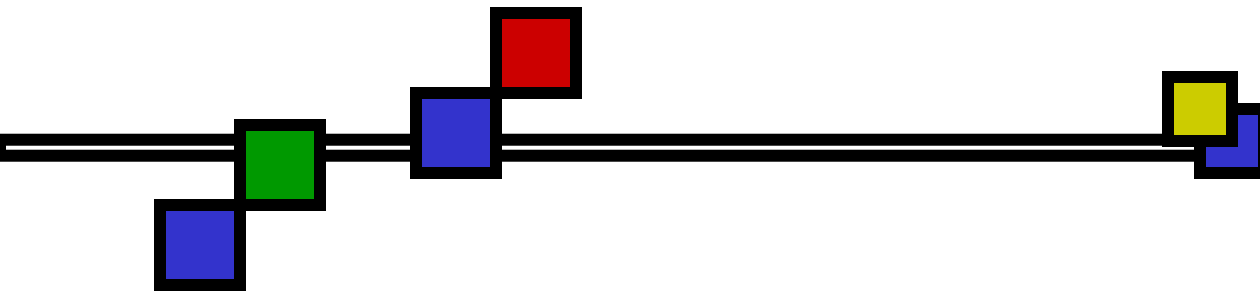
indicadores da parte positiva do Plano de Projeção correspondente



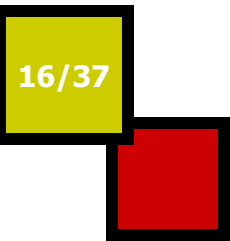


# Diedros

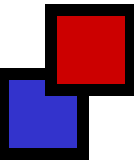




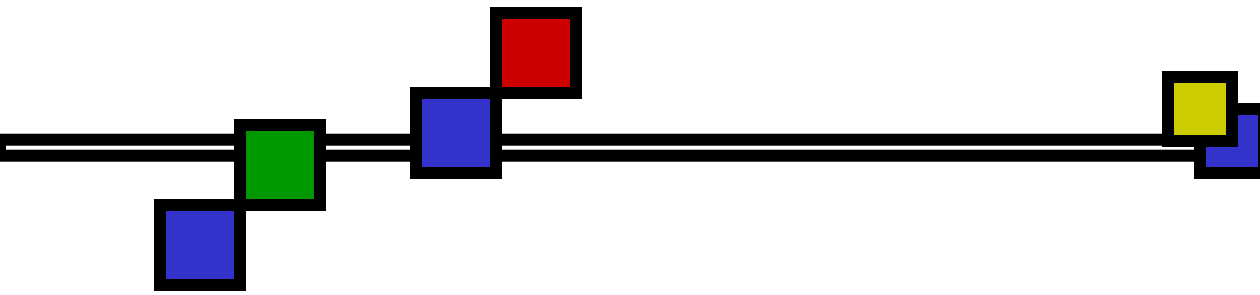
# Exercício 1



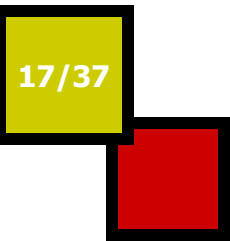
*Exercício 1: Um ponto pode estar em qualquer um dos quatro diedros Faça quatro Épuras indicando a posição de pontos nos quatro diedros diferentes.*



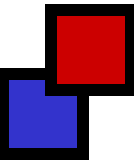




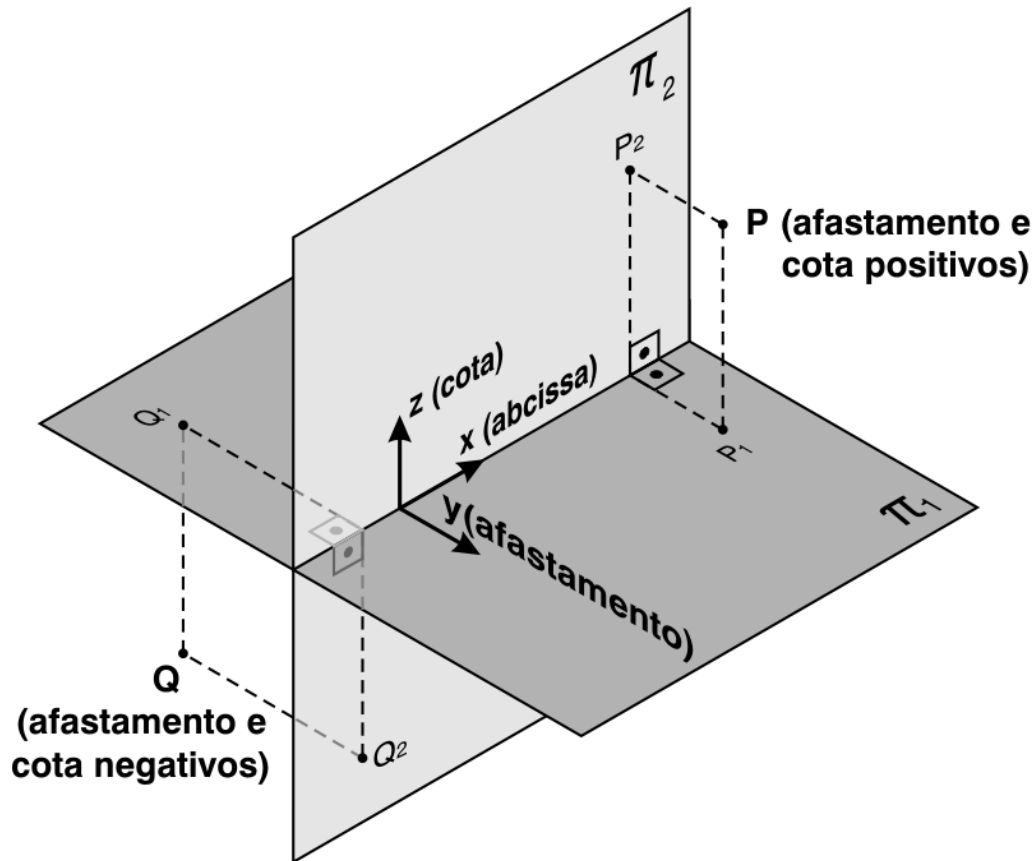
## Exercício 2



*Exercício 2: Escreva uma justificativa simples para o fato das projeções de um ponto estarem sobre uma reta perpendicular à Linha de Terra.*



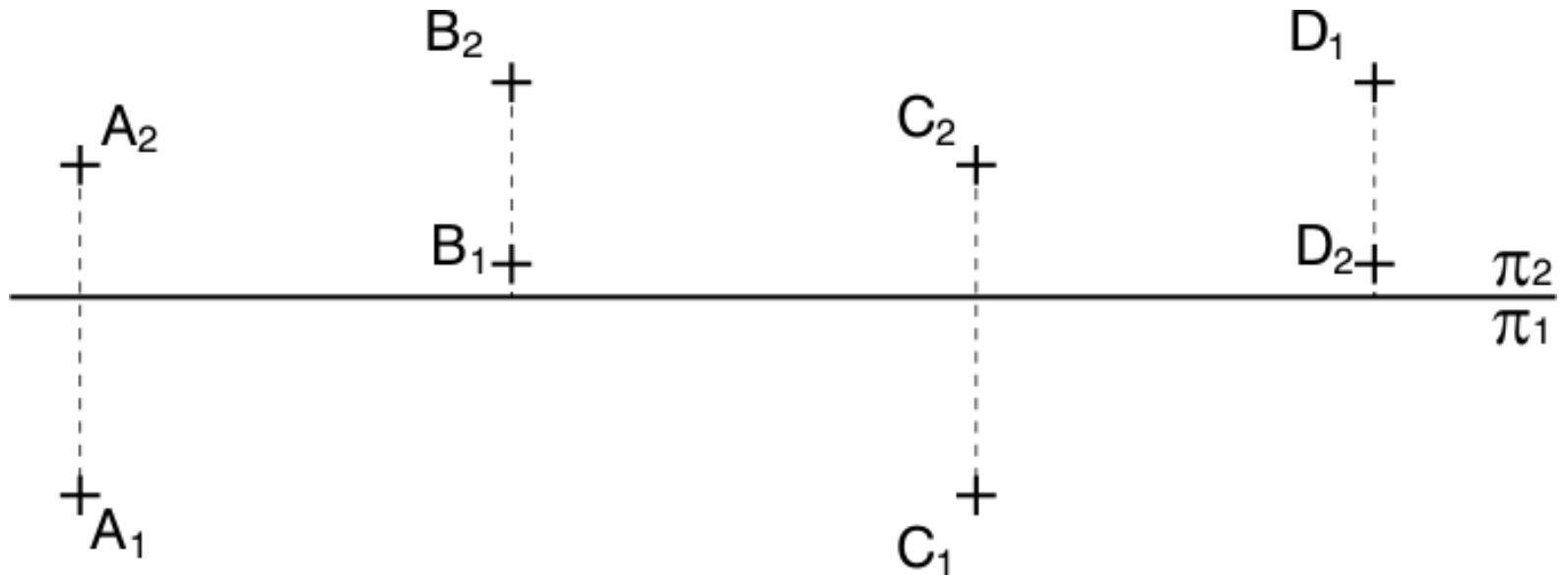
# Cota, Afastamento e Abscissa

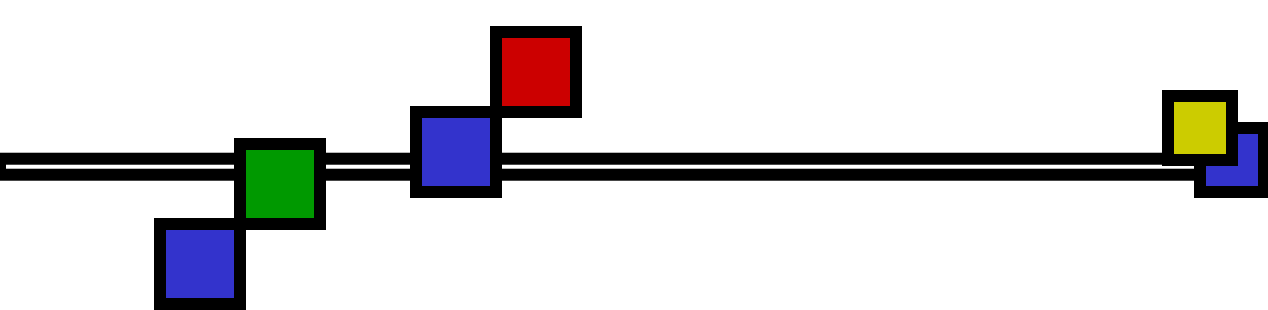


# Exercício 3

Exercício 3: Os pontos  $A$ ,  $B$ ,  $C$  e  $D$  são dados em Épura. Determinar:

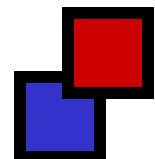
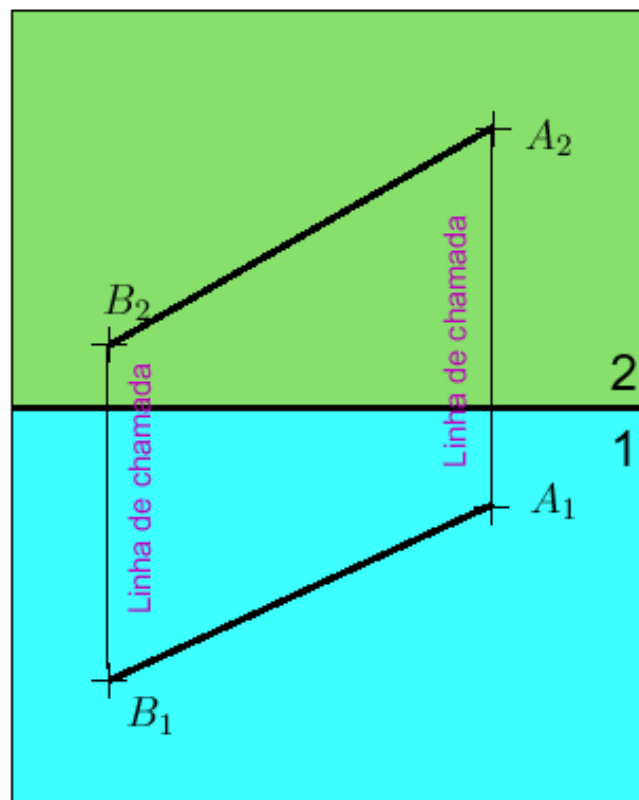
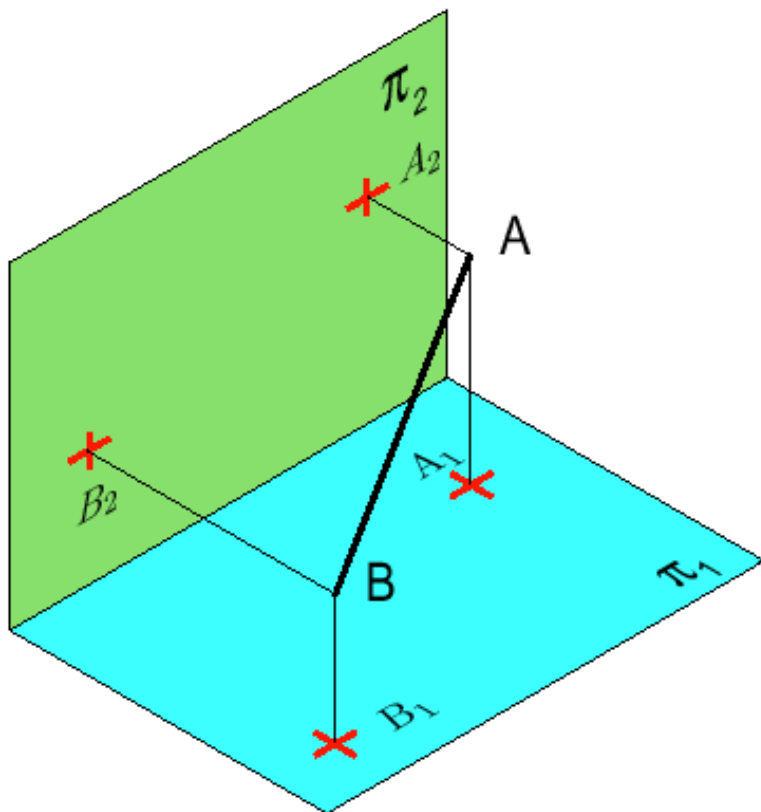
- As projeções dos pontos  $A'$  e  $B'$  simétricos de  $A$  e  $B$  com relação ao Plano Horizontal de projeção.
- As projeções dos pontos  $C'$  e  $D'$ , simétricos de  $C$  e  $D$  com relação ao Plano Vertical de projeção.

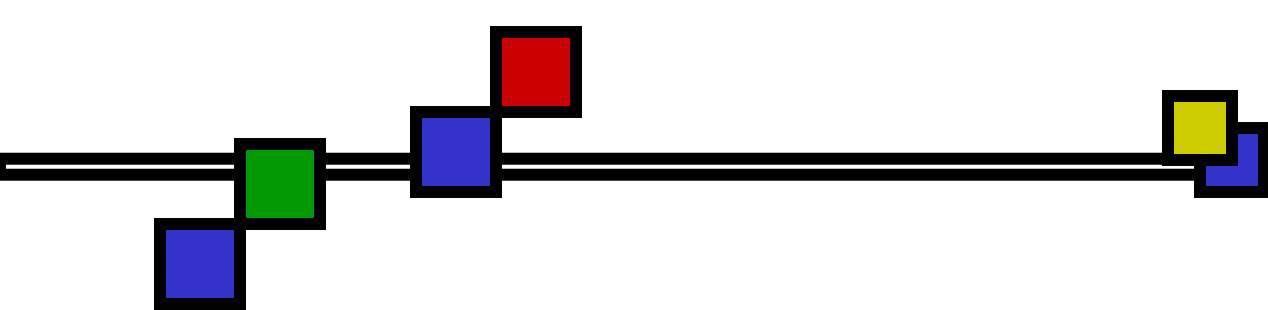




# Reta

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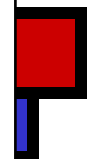
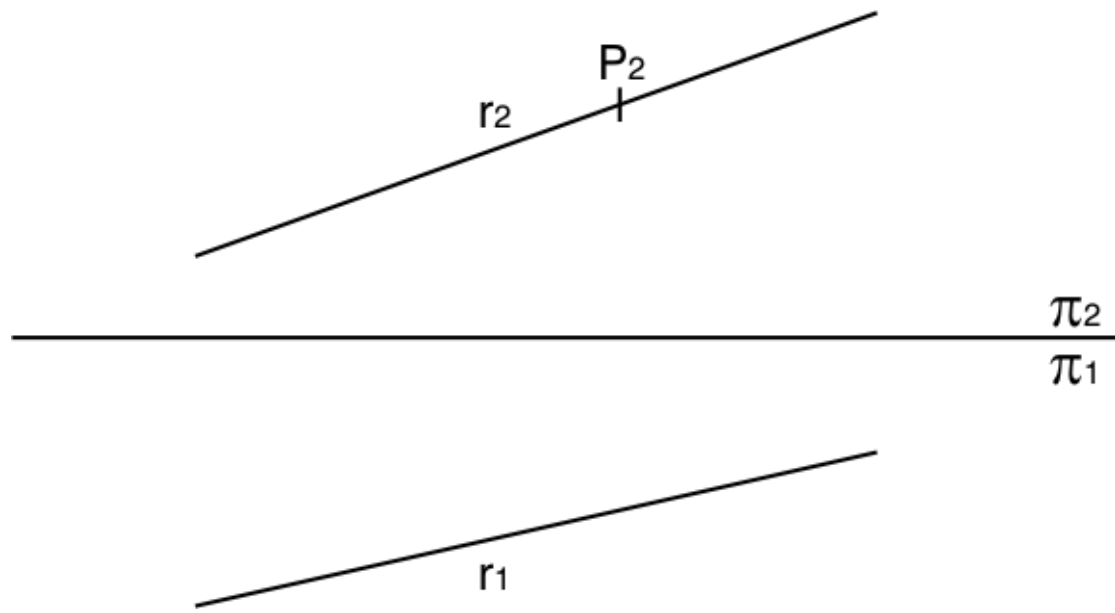


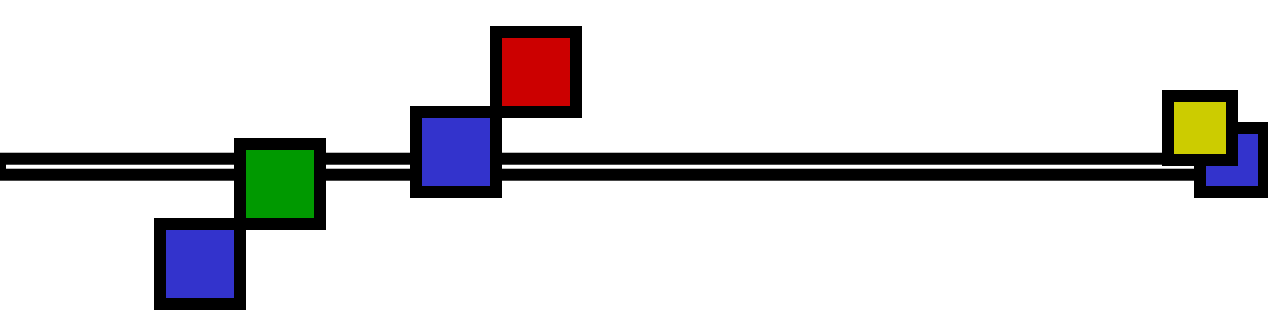


# Exercício 4

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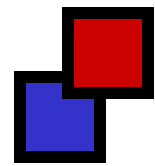
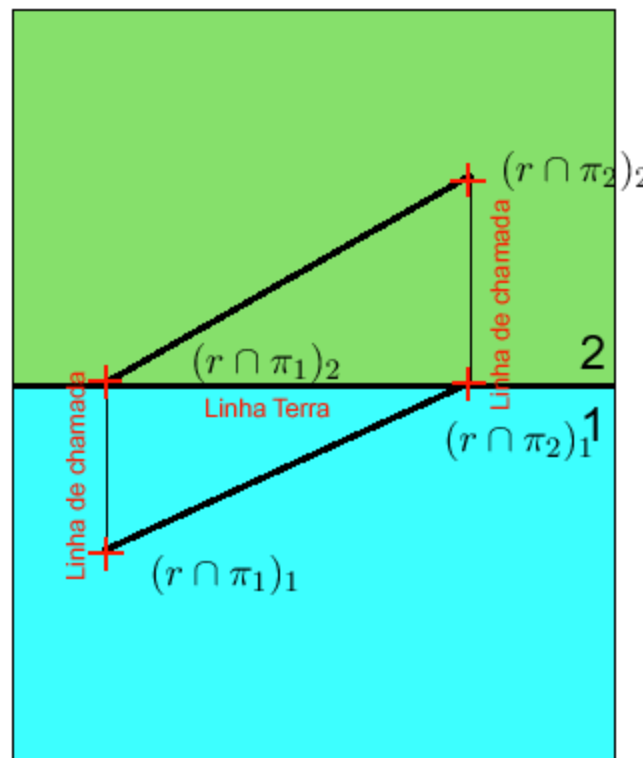
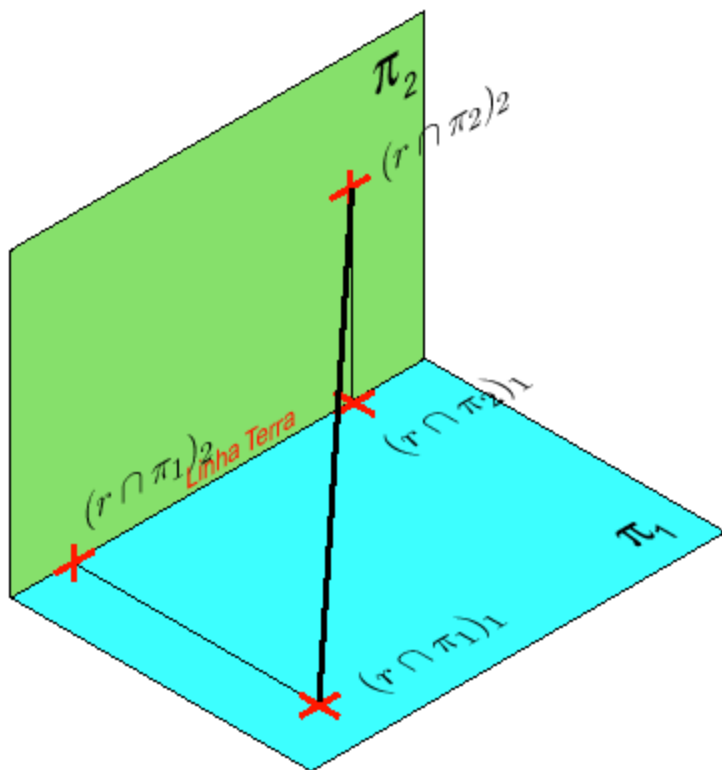
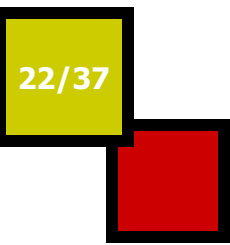
*Exercício 4: São representados em Épura uma reta  $r$  e uma projeção do ponto  $P \in r$ . Determinar a projeção do ponto  $P$  em  $\pi_1$ .*

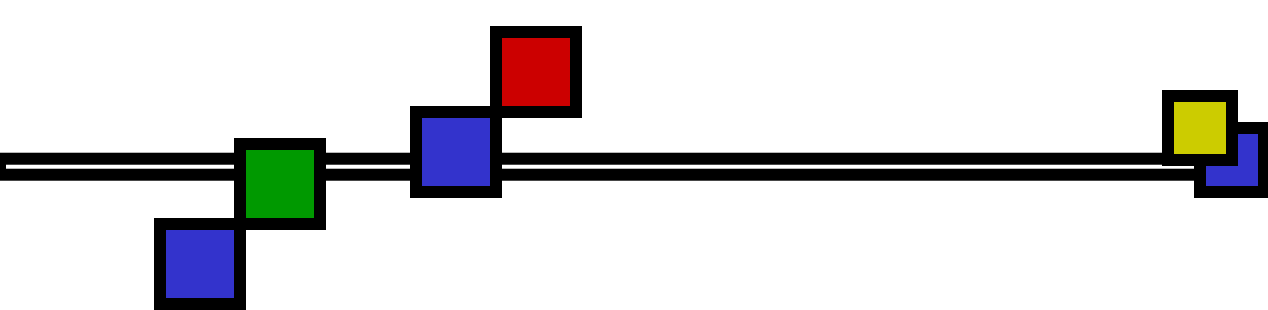




# Traços de uma reta

(traço = intersecção)

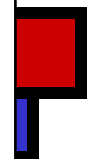
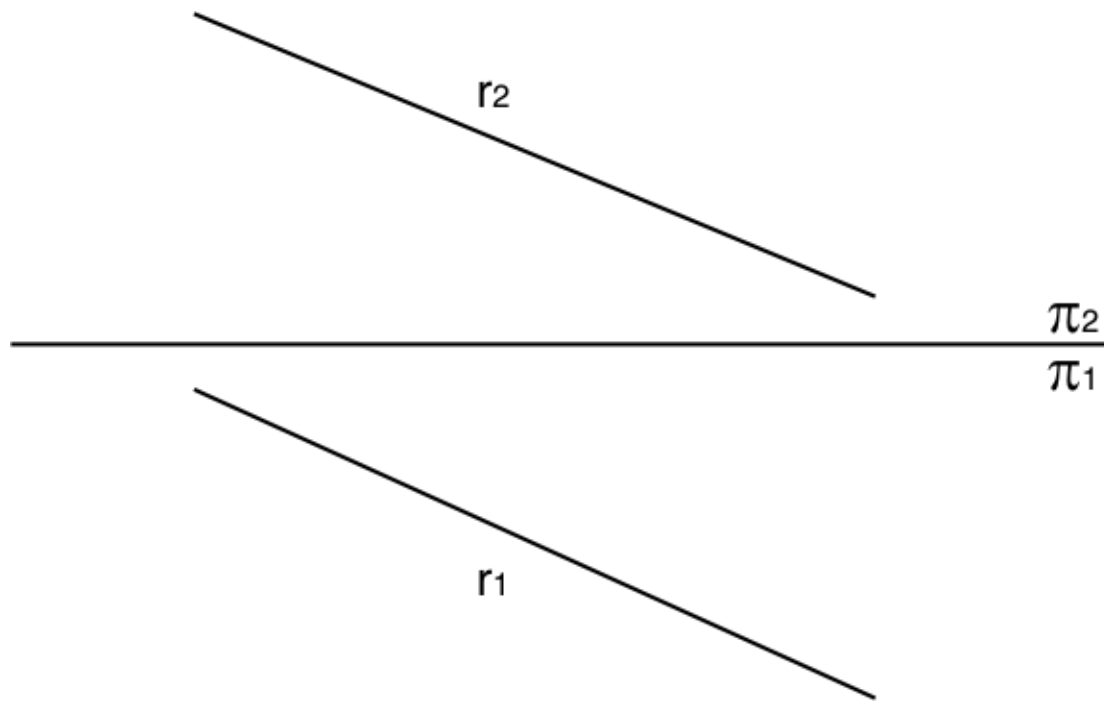




# Exercício 5

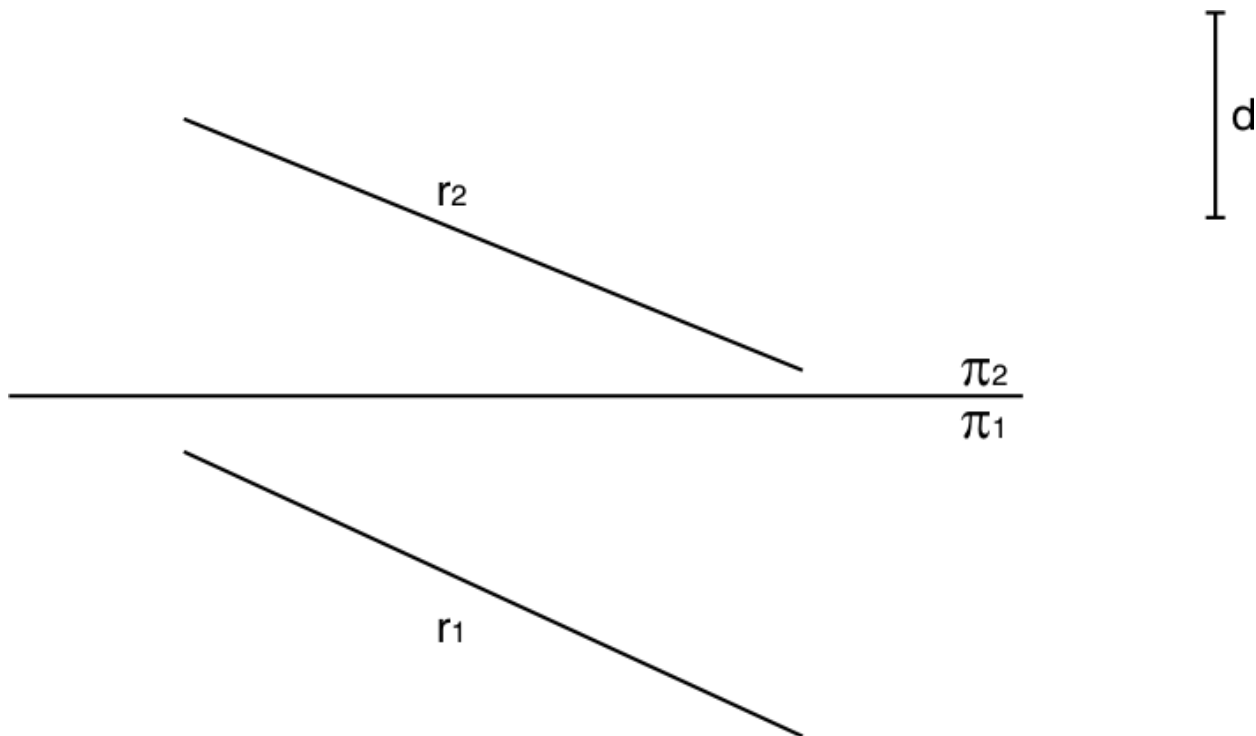
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*Exercício 5: Determinar os Traços da reta  $r$  no Plano Horizontal  $\pi_1$  e vertical  $\pi_2$ . Se você acertou, deve ter marcado no papel quatro pontos.*

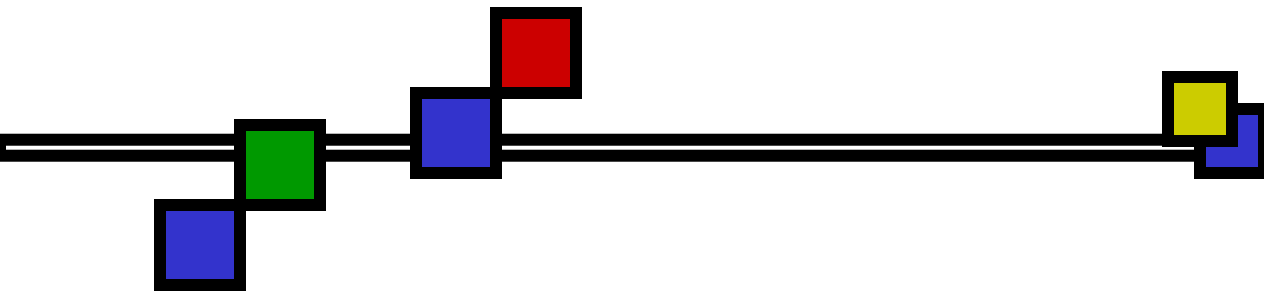


# Exercício 6

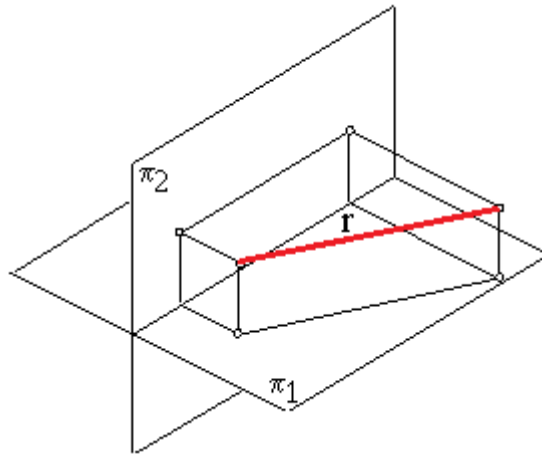
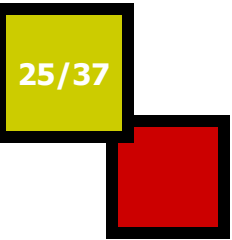
*Exercício 6: Determinar os traços da reta  $r$  com os Planos de Projeção. Obter na reta  $r$  o ponto  $A$  de afastamento igual ao comprimento  $d$  e o ponto  $B$  de cota  $d/2$ .*



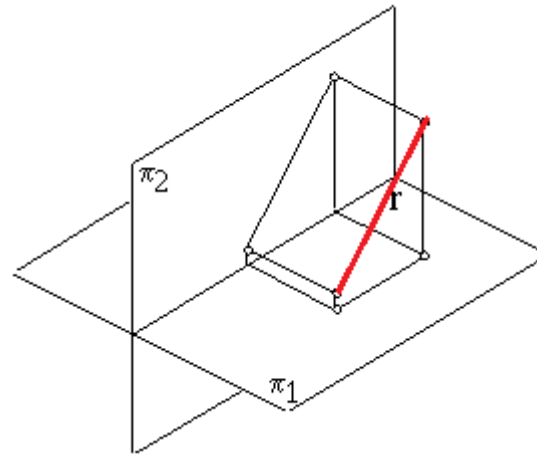




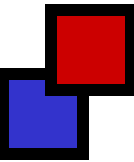
# Posições particulares da reta

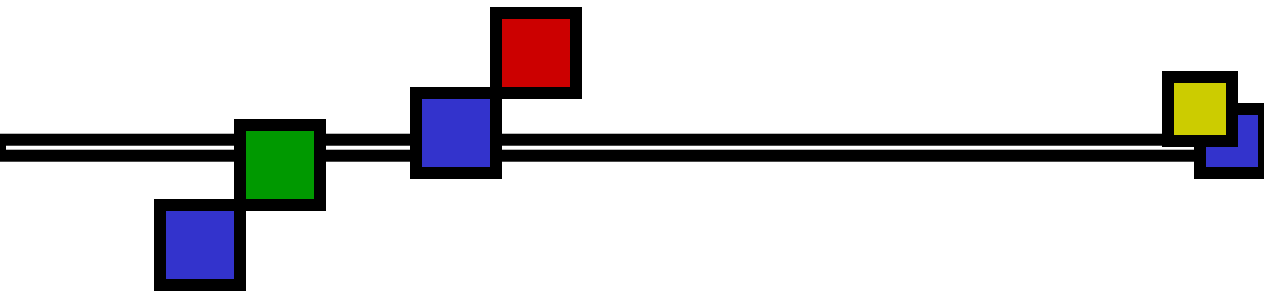


Reta horizontal

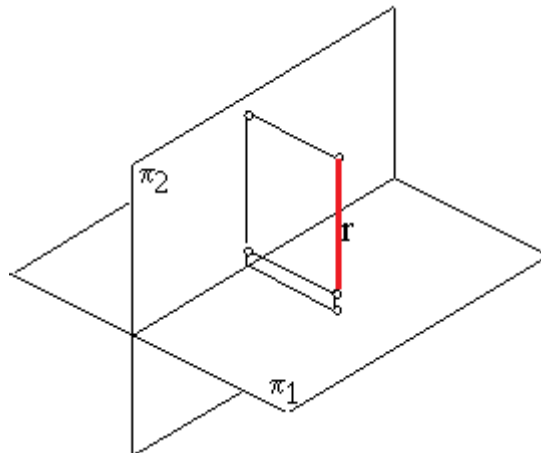
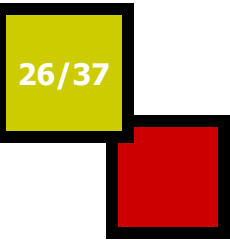


Reta frontal

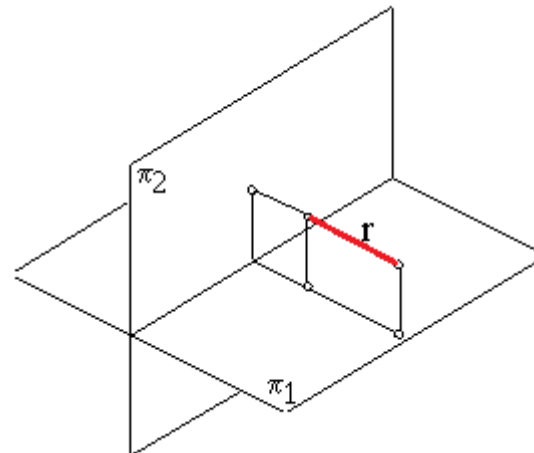




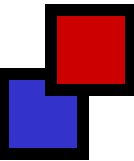
# Posições particulares da reta

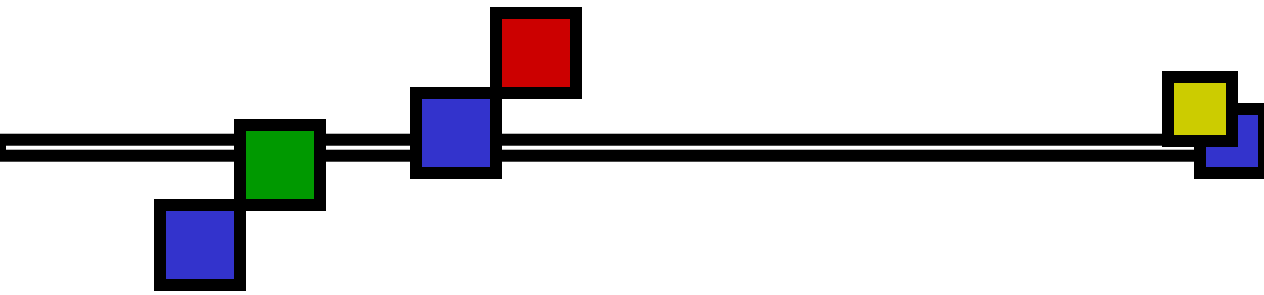


Reta vertical

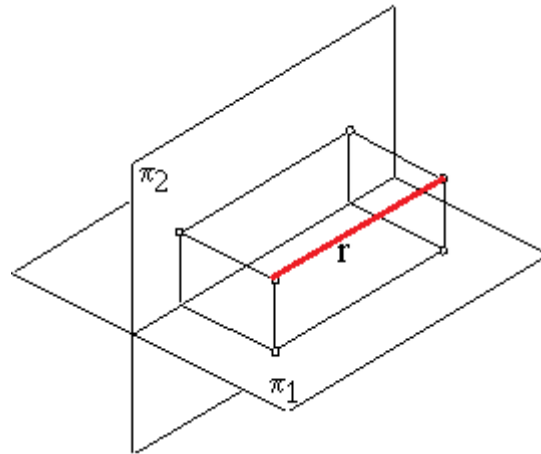
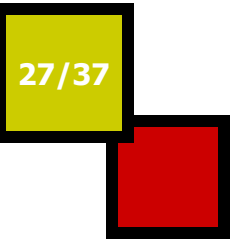


Reta topo

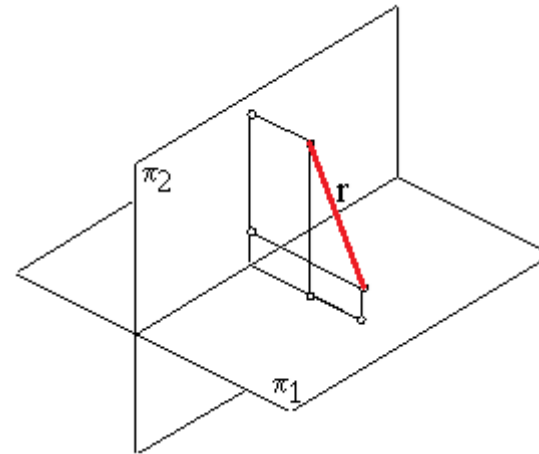




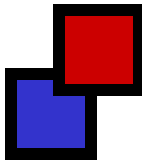
# Posições particulares da reta

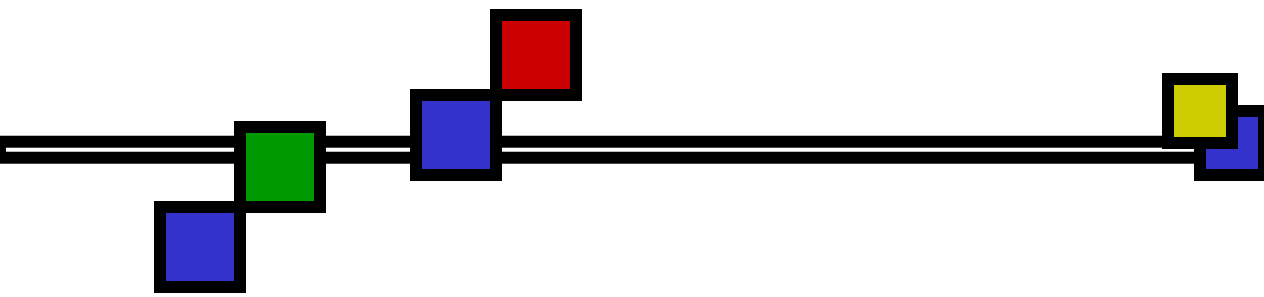


Reta fronto-horizontal

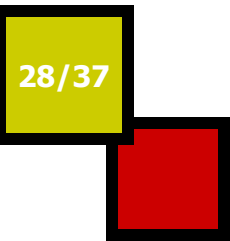


Reta perfil





# Exercícios para casa



Resolver para a próxima aula, os exercícios de 1, 2, 5, 6 e 7 da apostila.

