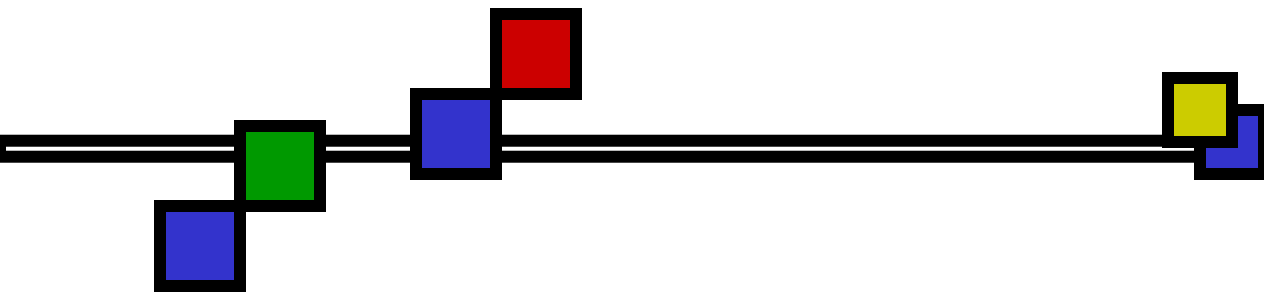


Geometria Descritiva VI

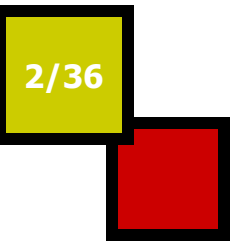
Planos



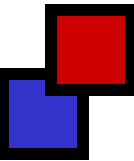
**PCC3100 – Representação Gráfica
para Projeto - Mecatrônica**



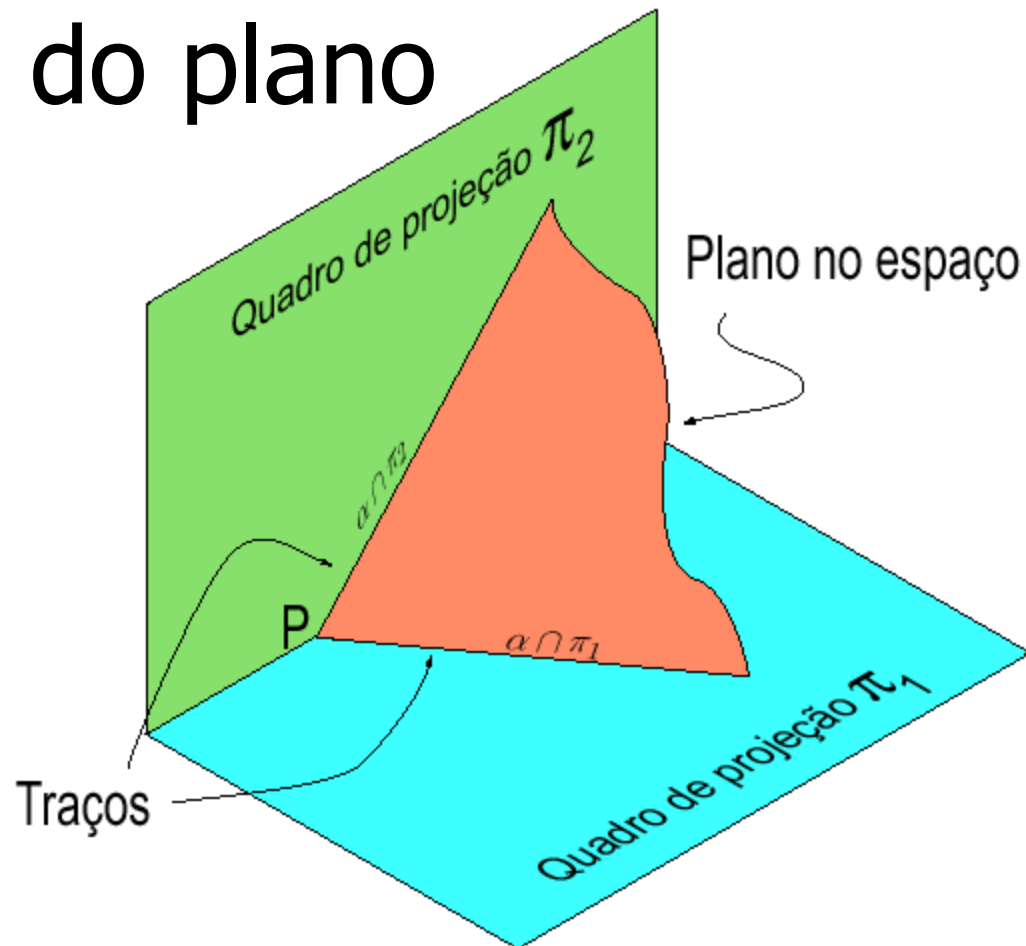
Representação de Planos



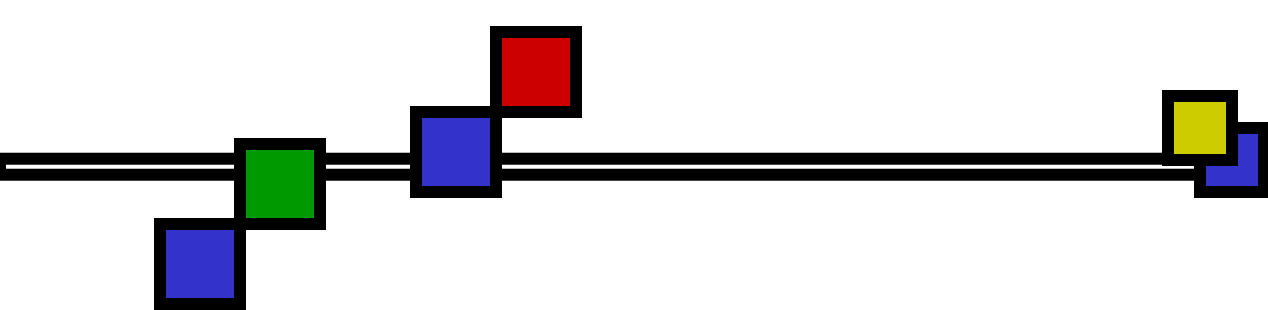
- *3 pontos;* ou
- *1 reta e 1 ponto externo a ela;* ou
- *2 retas paralelas;* ou
- ***2 retas concorrentes:***
 - Traço horizontal do plano +
 - Traço vertical do plano;



Traços do plano

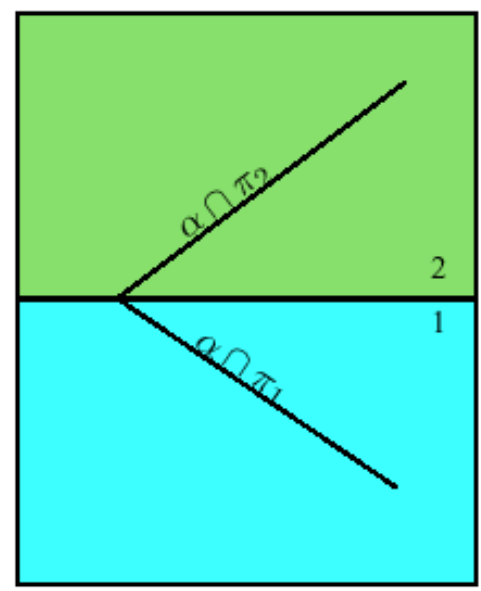
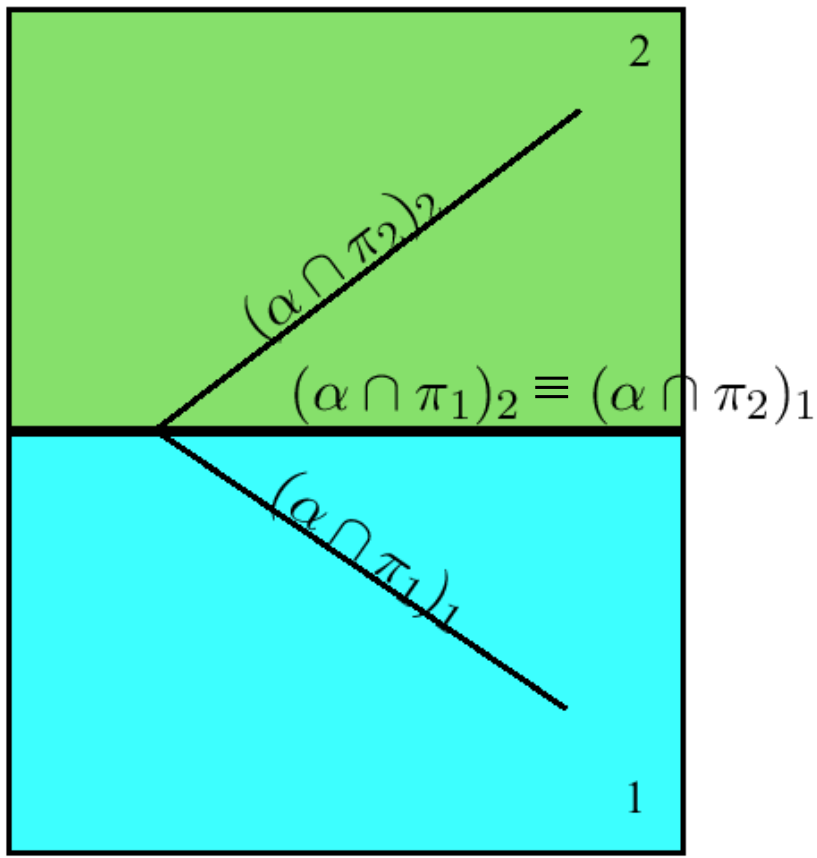


Lembrando: em GD, “traço” = intersecção com quadro

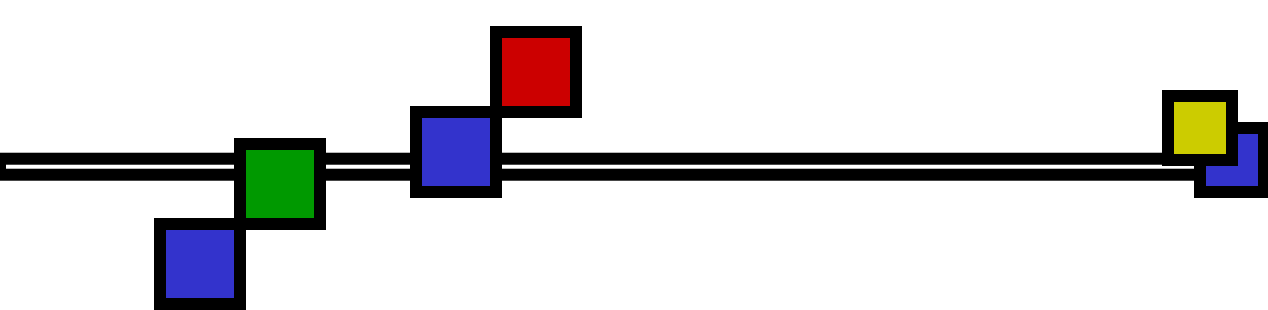


Traços em Épura

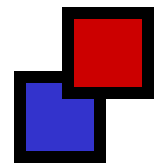
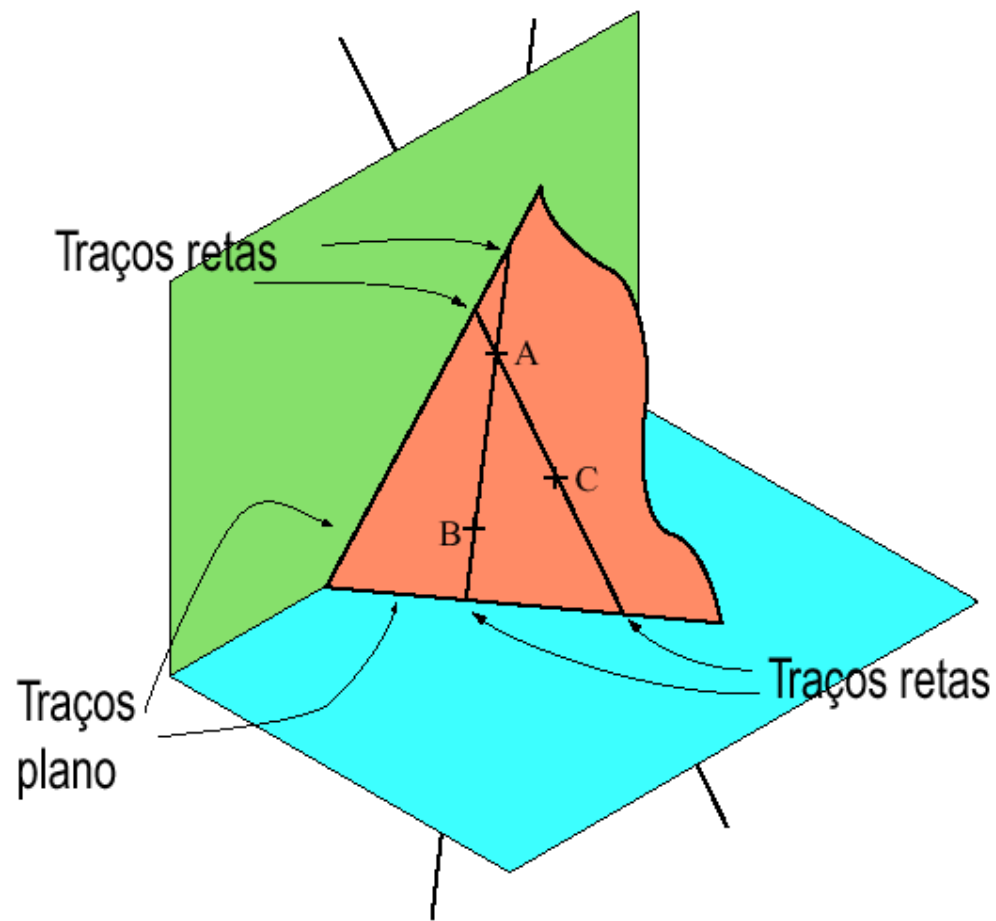
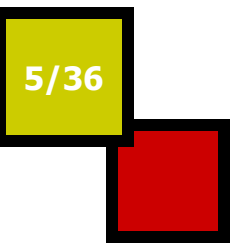
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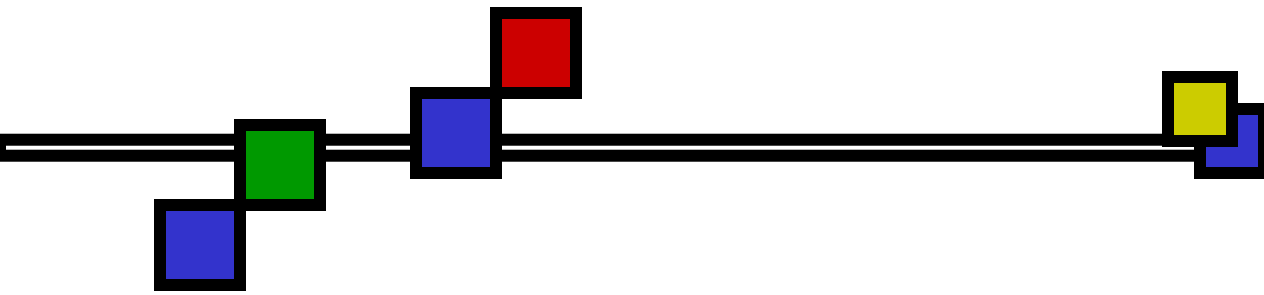


representação simplificada

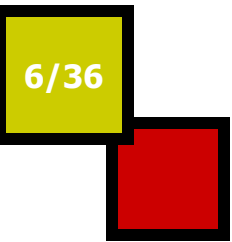


Traços do plano e de suas retas

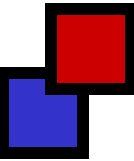




Traços do plano e de suas retas

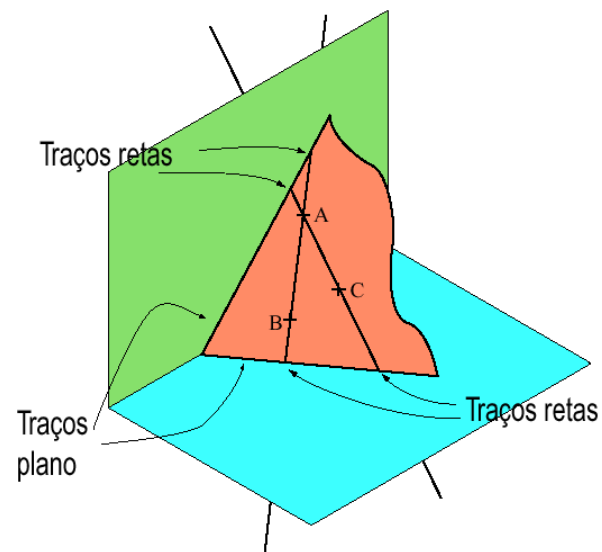


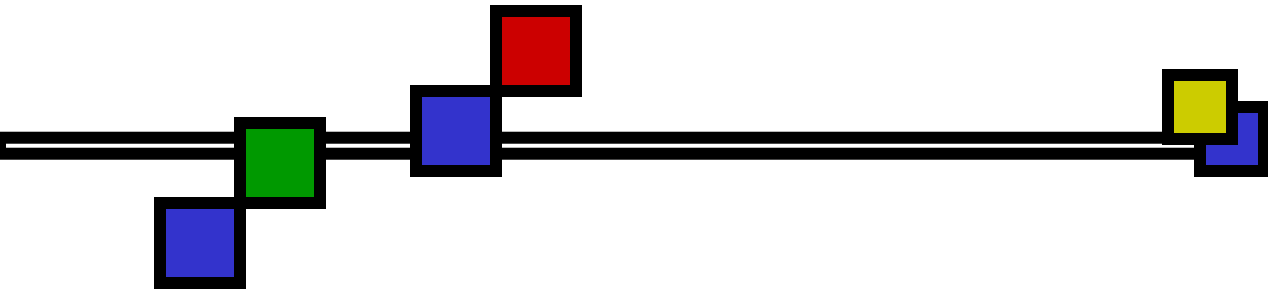
- *"Os traços de um plano são o lugar geométrico dos traços das retas contidas no plano"*
 - Determinação dos traços do plano:
 - Determine os traços de duas retas quaisquer contidas no plano.



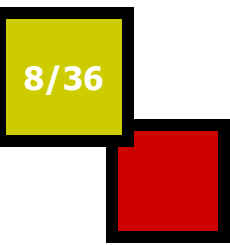
Pertinência reta – plano

- Condição de pertinência reta – plano:
 - Os traços das retas devem pertencer aos traços do plano.

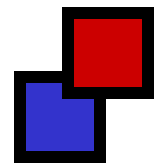
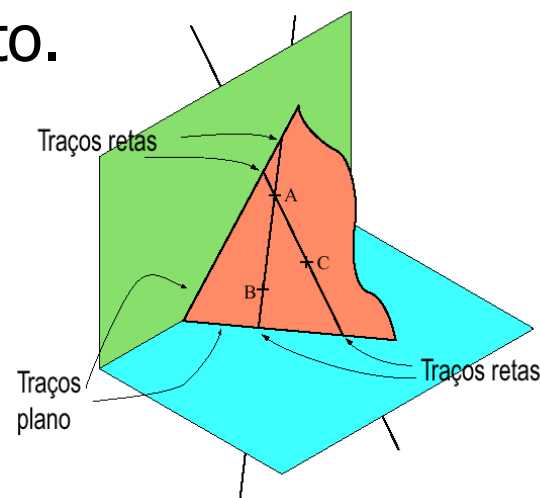


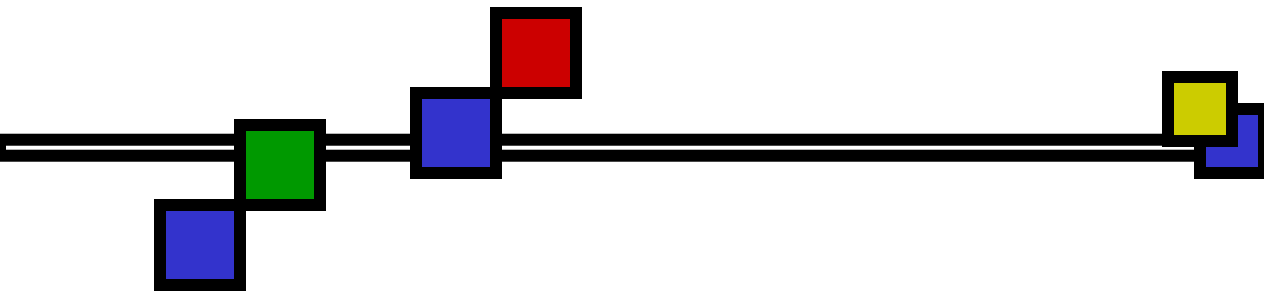


Pertinência ponto - plano

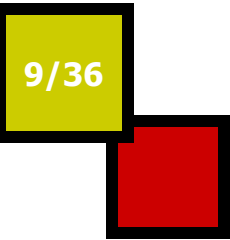


- Se um ponto pertence a uma reta de um plano, então ele pertence a este plano:
 - Tentar encontrar um reta pertencente ao plano que passe pelo ponto.

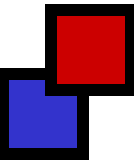


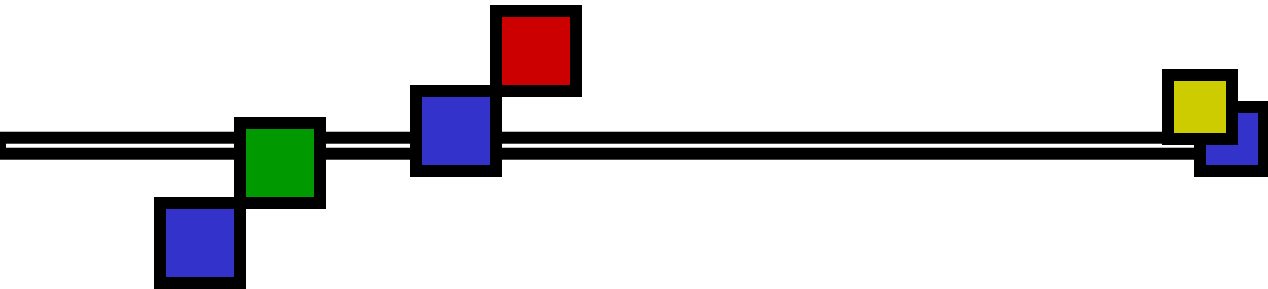


Intersecção plano – plano

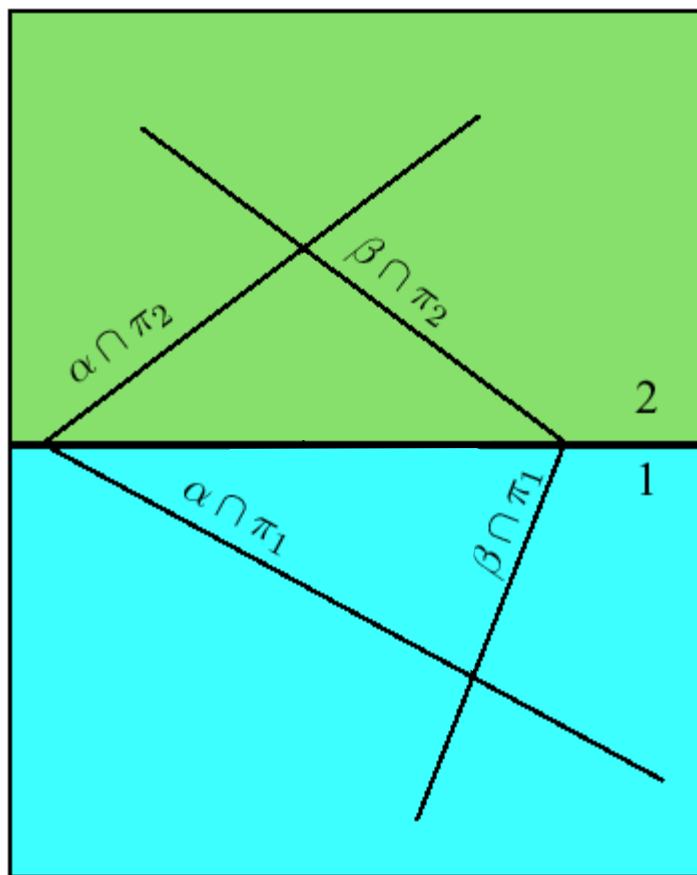
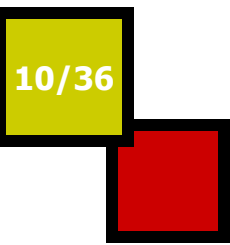


- É uma reta i ;
 - i pertence aos dois planos;
 - reta é definida por 2 pontos:
 - Achar 2 pontos pertencentes aos dois planos;



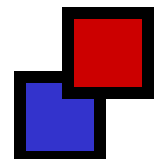


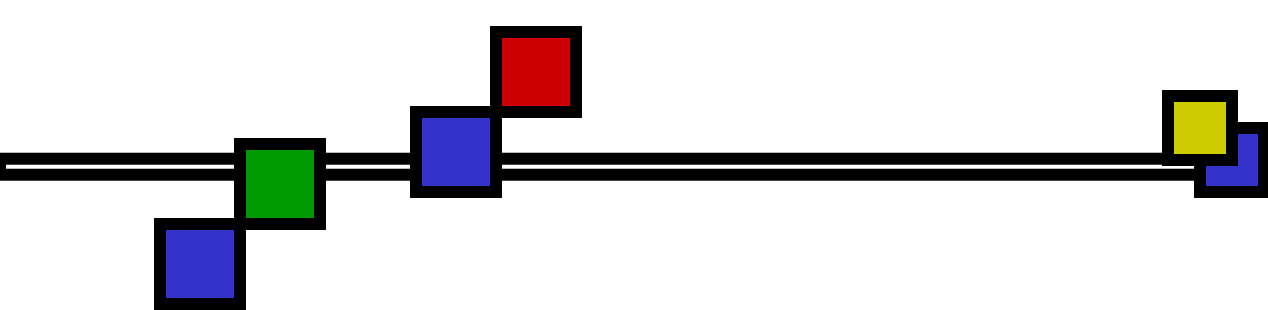
Intersecção plano – plano



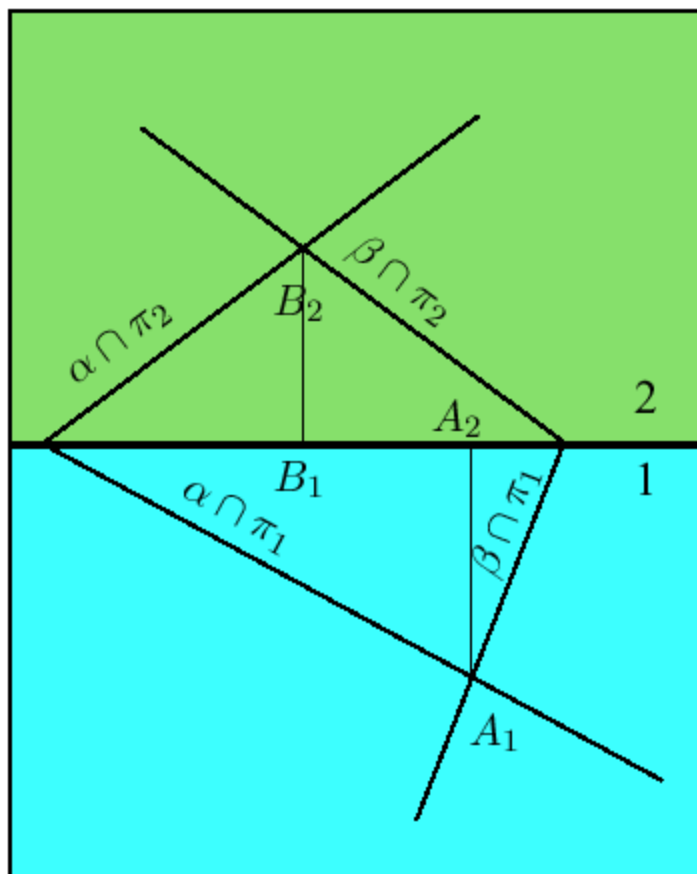
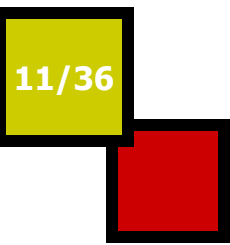
Como encontrar 2 pontos pertencentes, simultaneamente, a α e a β ?

Você está enxergando algum ponto com essa característica?



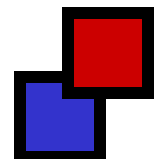


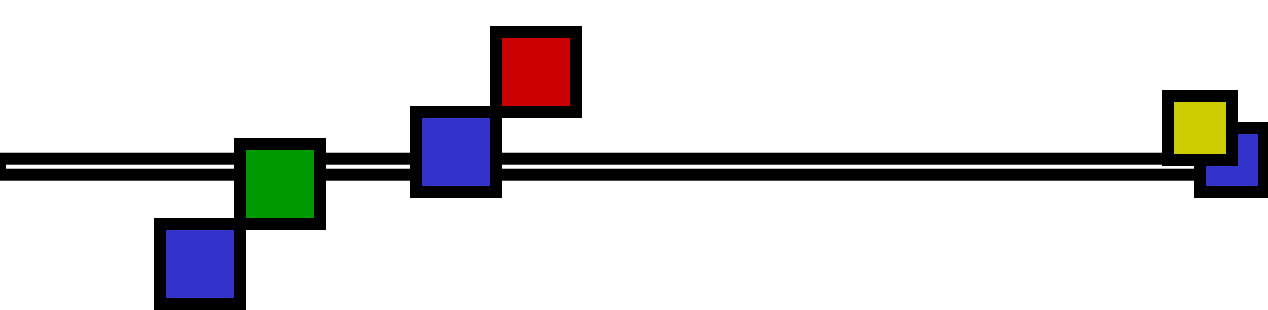
Intersecção plano – plano



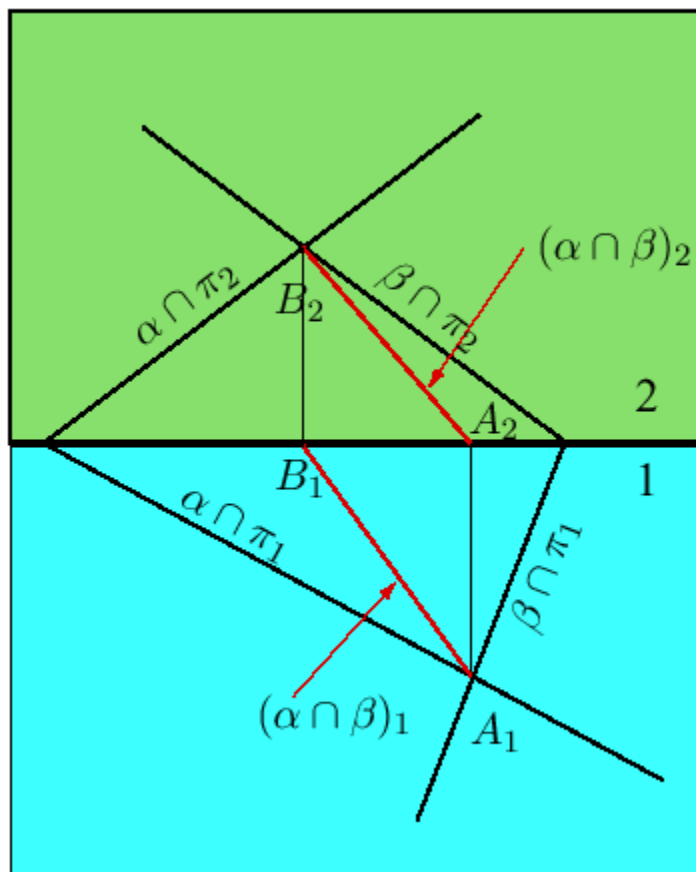
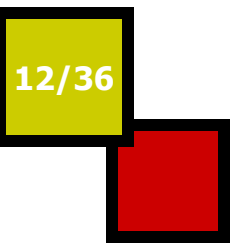
$$A \in \alpha \text{ e } \beta$$

$$B \in \alpha \text{ e } \beta$$





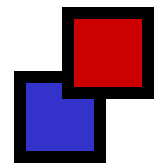
Intersecção plano – plano



$$A \in \alpha \text{ e } \beta$$

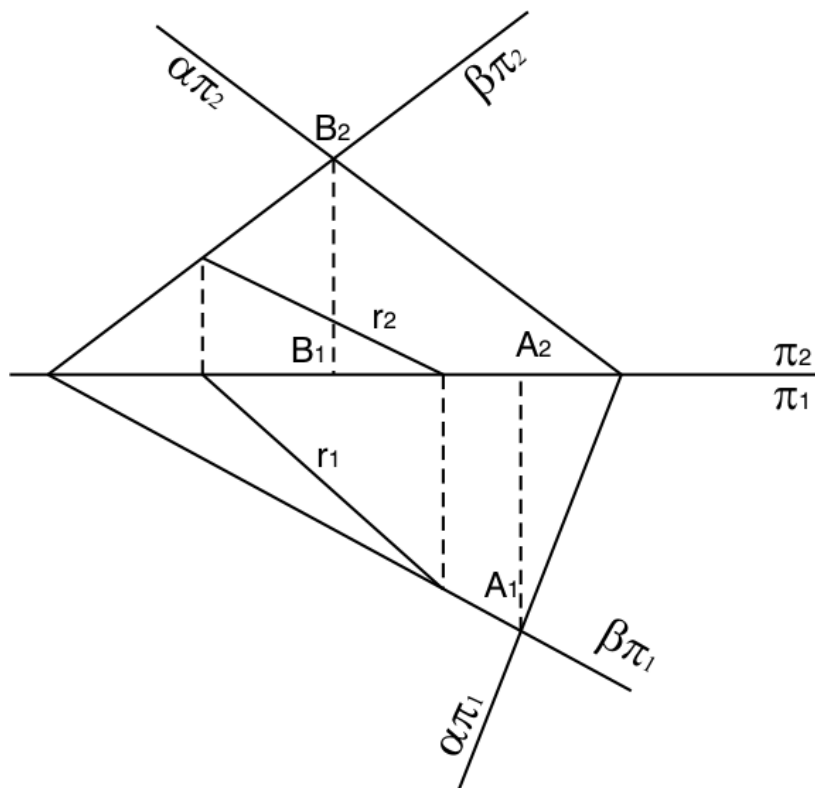
$$B \in \alpha \text{ e } \beta$$

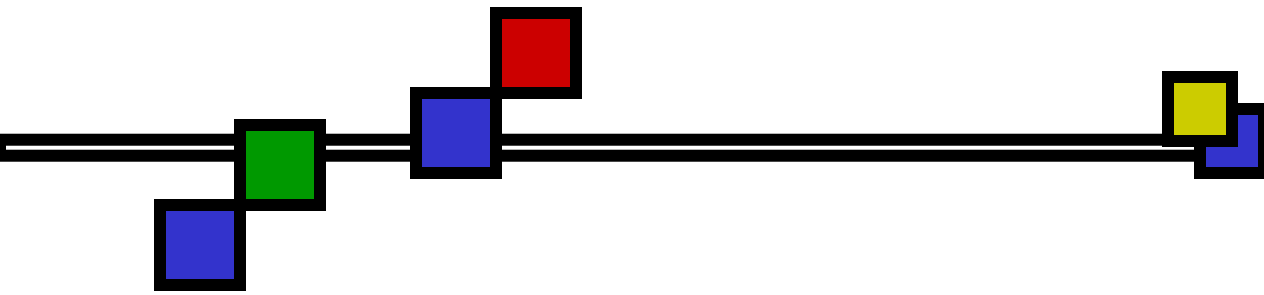
$$i = \alpha \cap \beta \equiv \overleftrightarrow{AB}$$



Exercício 2.10

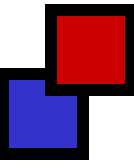
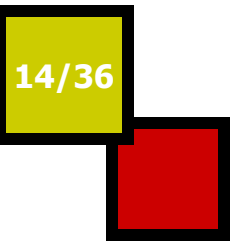
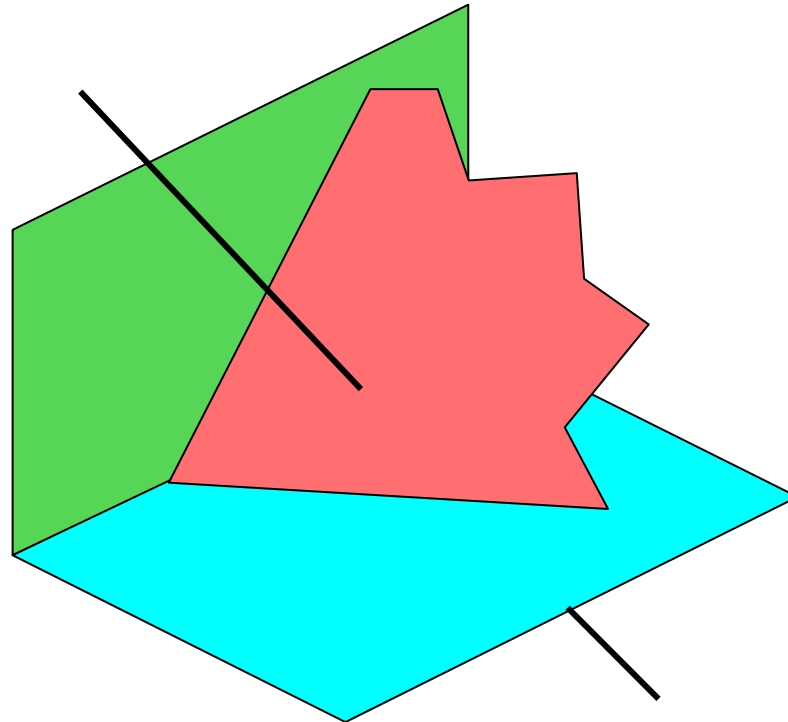
Sejam dois planos α e β e uma reta $r \subset \beta$. Determine $r \cap \alpha$

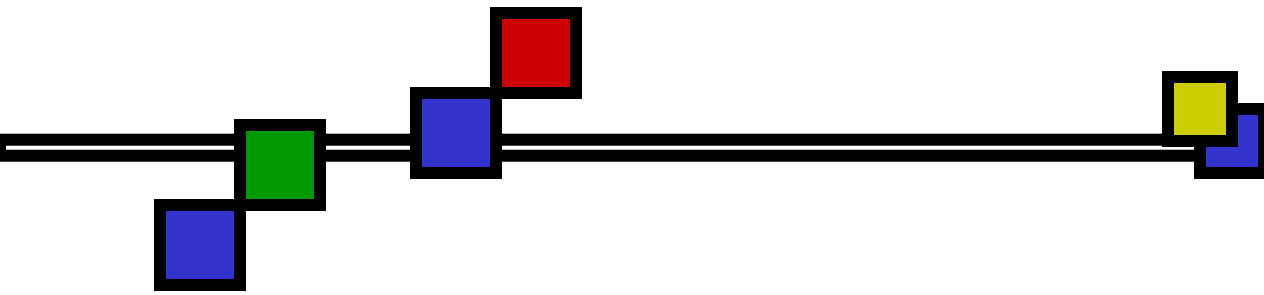




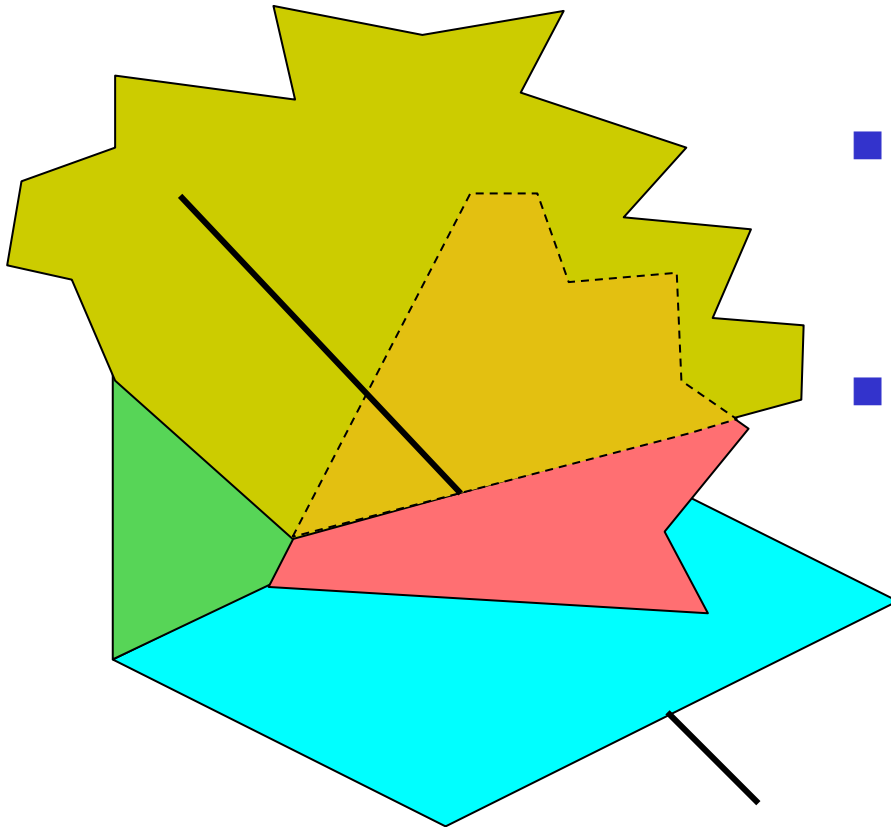
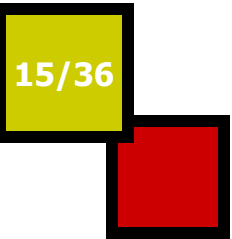
Intersecção reta – plano

- Recair no caso anterior (plano – plano)

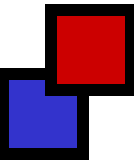


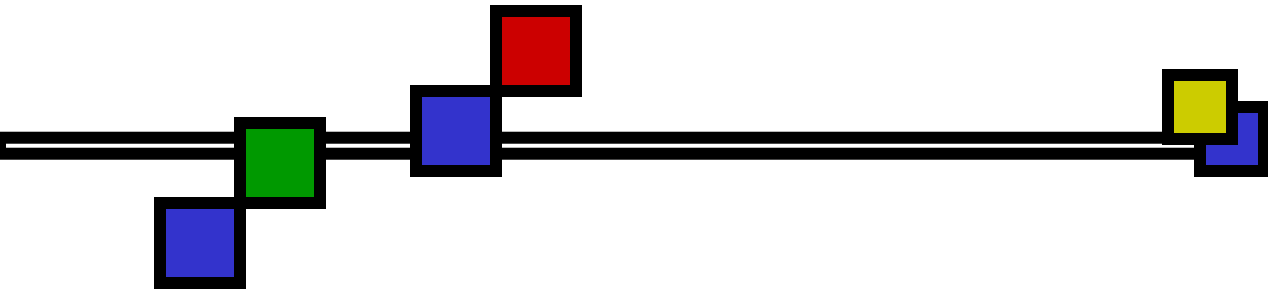


Intersecção reta – plano



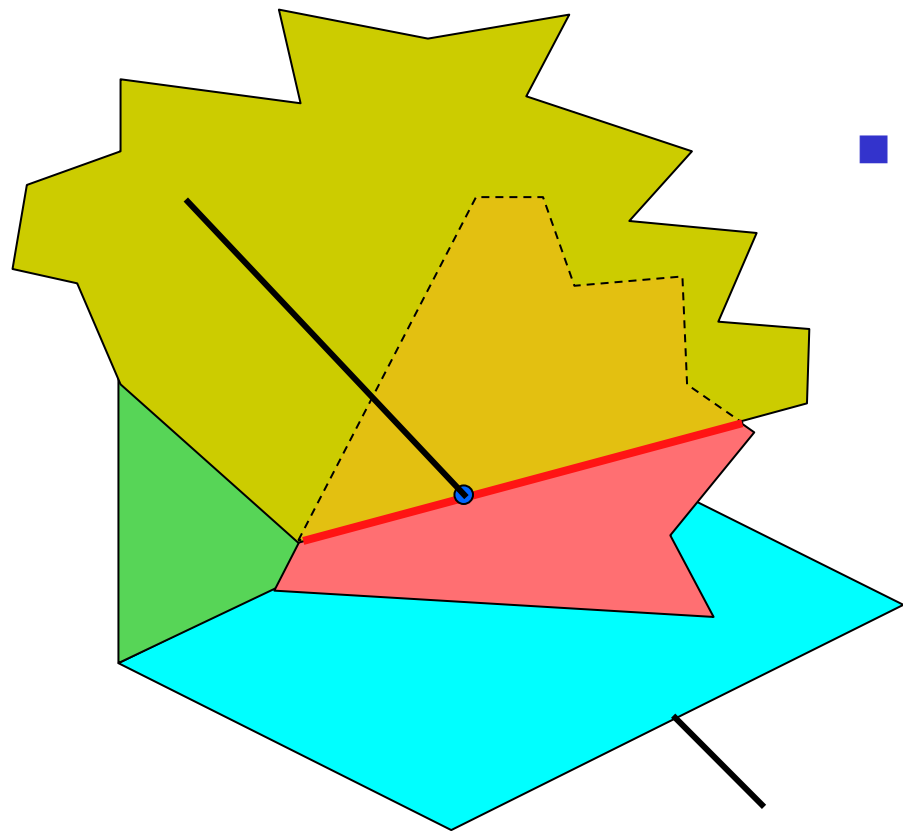
- Determinar um **plano arbitrário** que contém a reta dada;
- Determinar intersecção dos planos



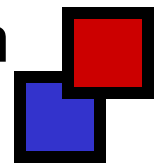


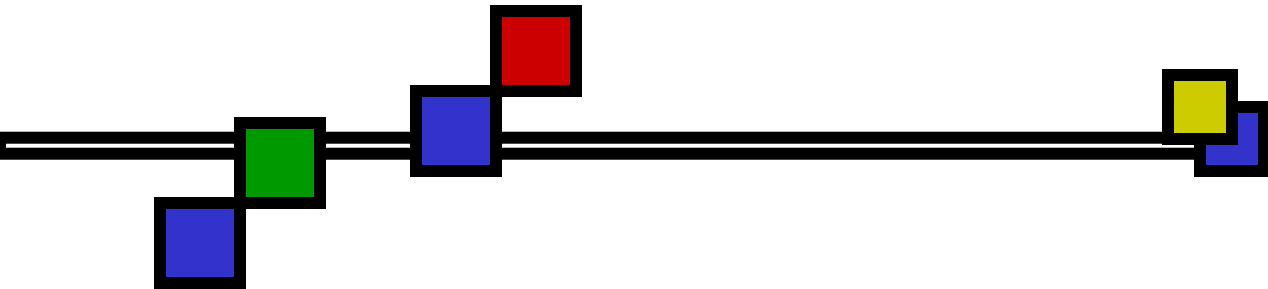
Intersecção reta – plano

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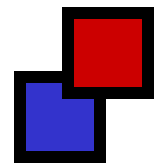
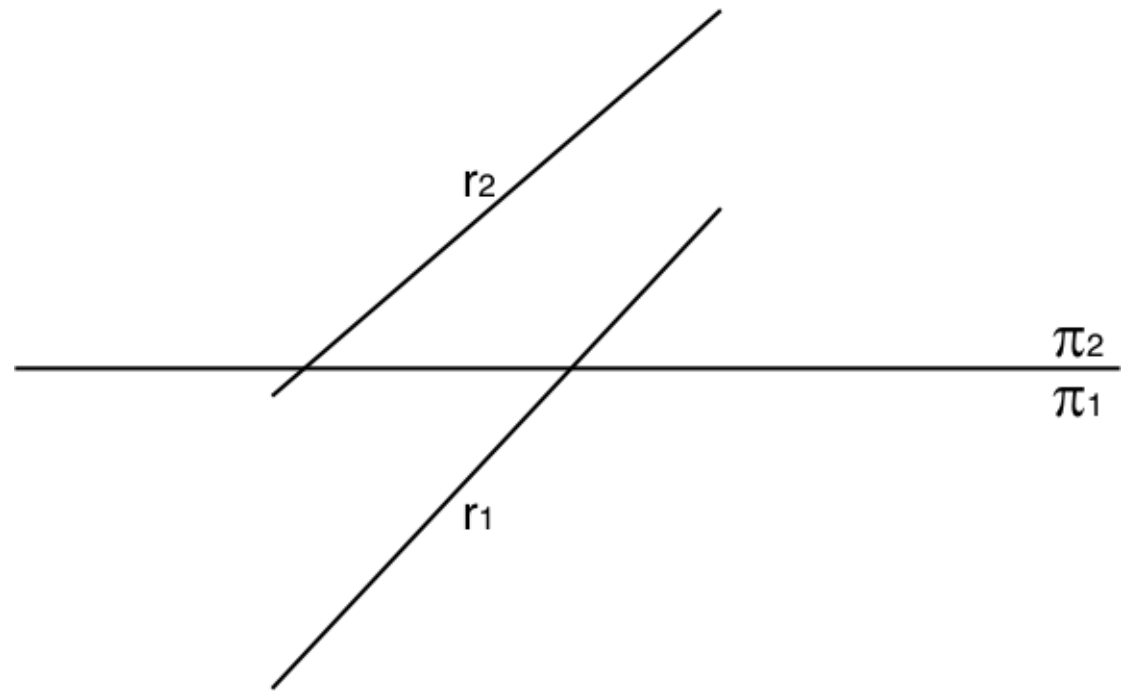
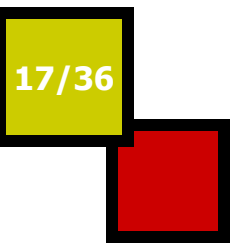
- A **intersecção** da reta com o plano coincide com a **intersecção** da reta com a **intersecção** dos planos

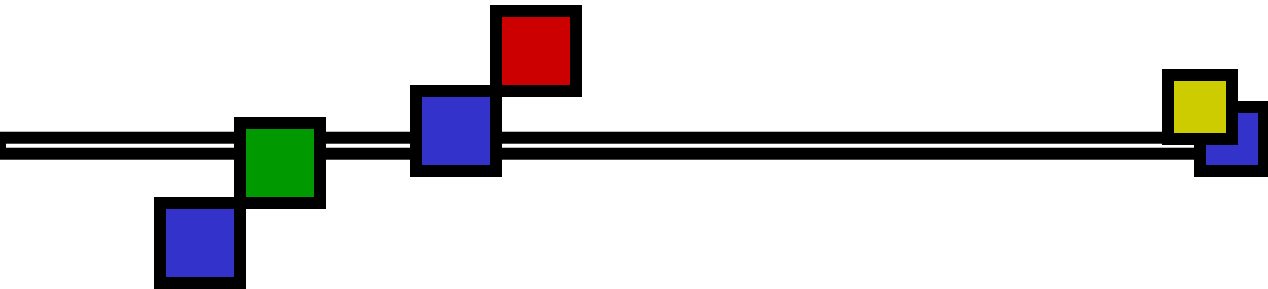




Exercício 1

Dada a reta r , represente um plano arbitrário que contenha r .





Exercício 2

Dados a reta r e o plano α . Determine $r \cap \alpha$.

