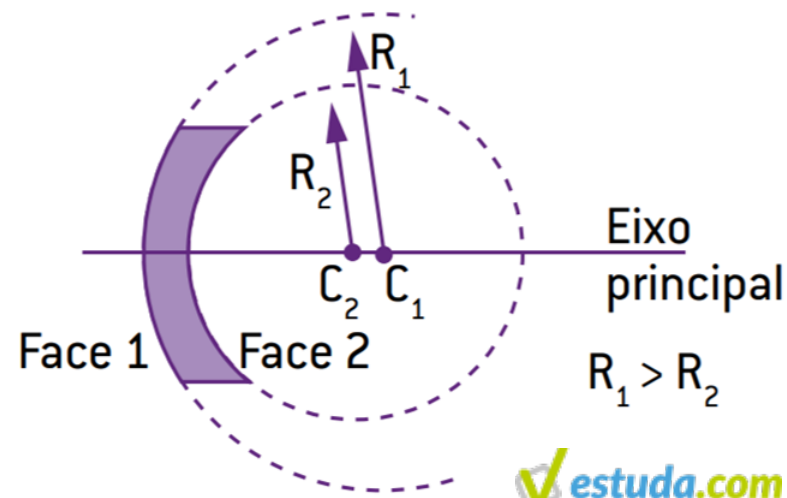
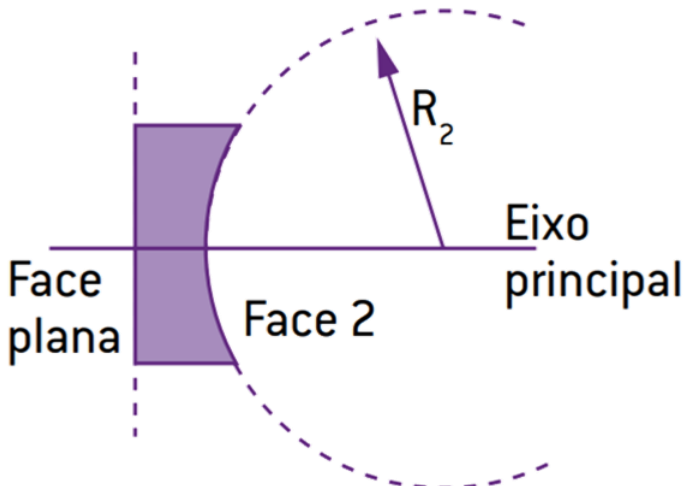
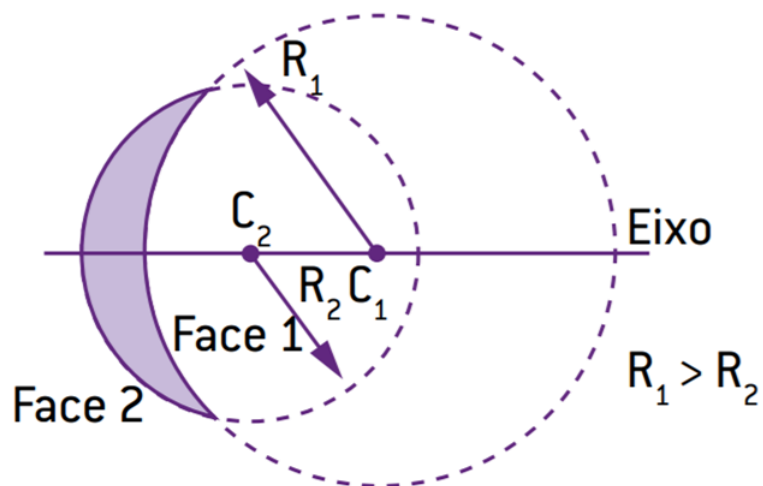
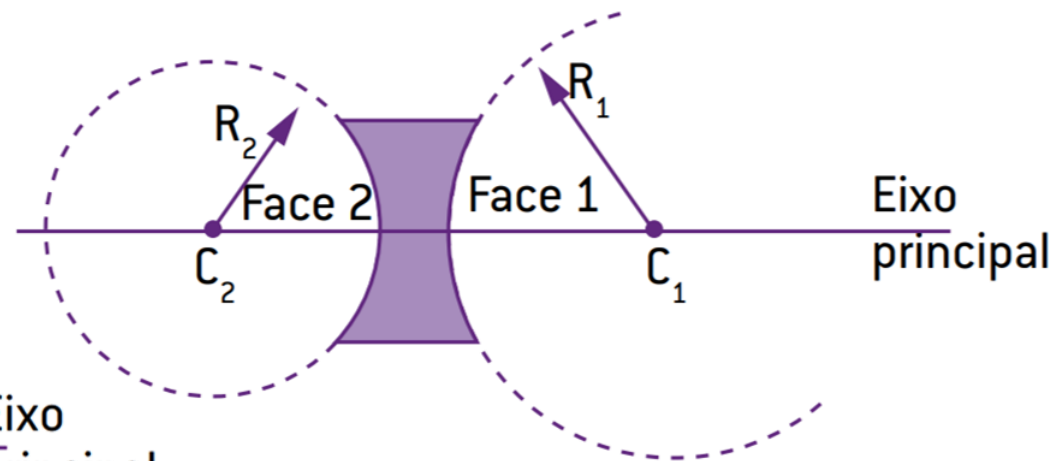
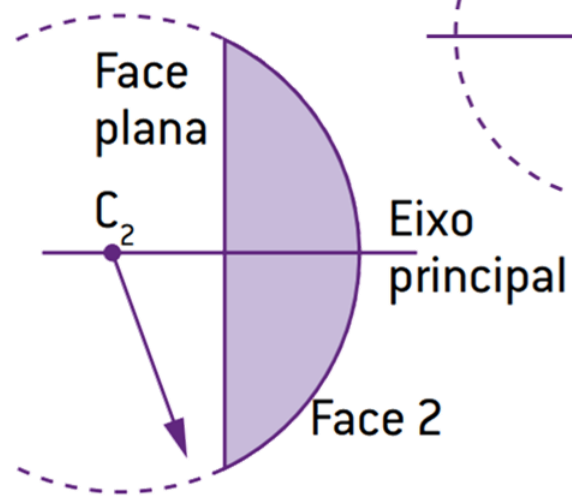
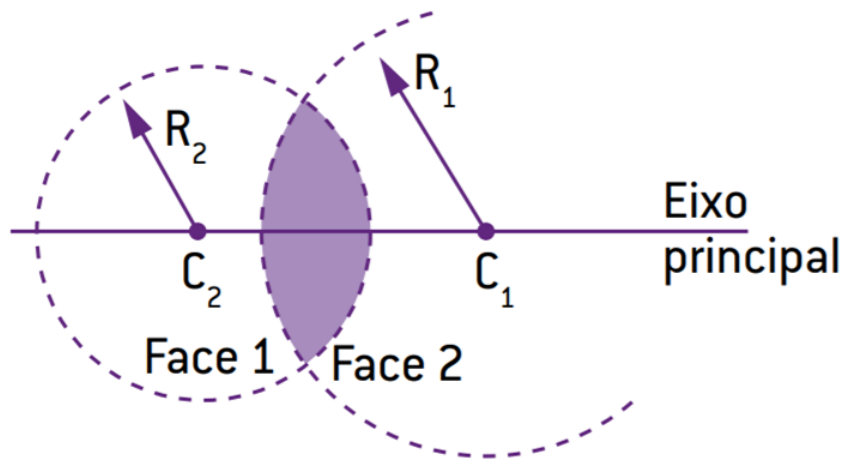


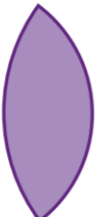
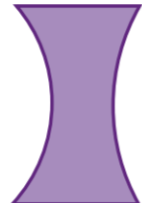




Lentes Esféricas

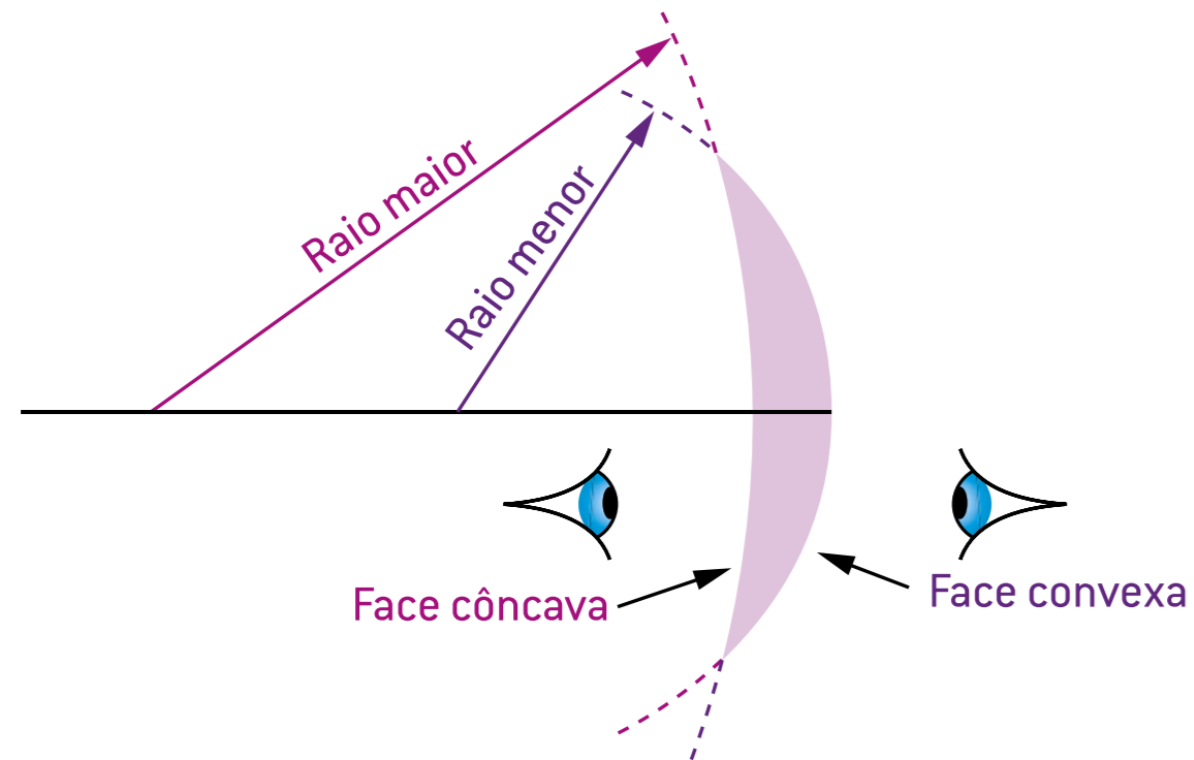
Prof. Bruno ZiSc
Física

Construção das Lentes Esféricas



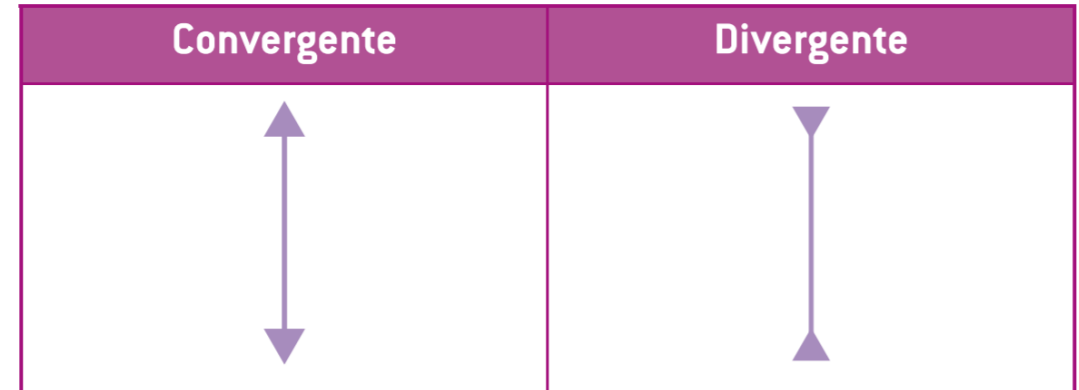
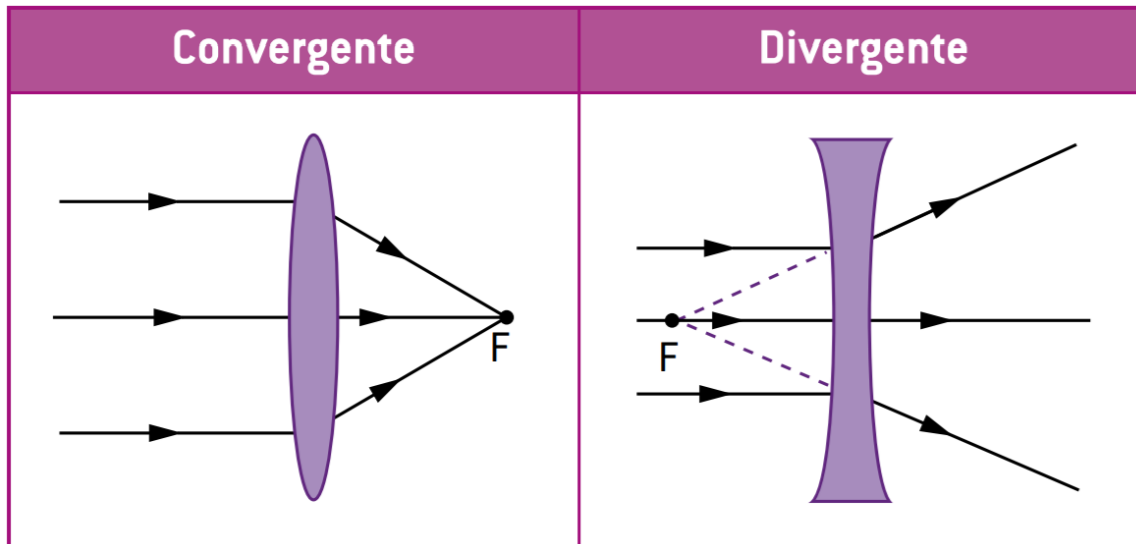
Classificação das Lentes

Bordas finas	Bordas grossas
Biconvexa 	Bicôncava 
Plano-convexa 	Plano-côncava 
Côncavo-convexa 	Convexo-côncava 
O nome da lente termina com a palavra "convexa".	O nome da lente termina com a palavra "côncava".



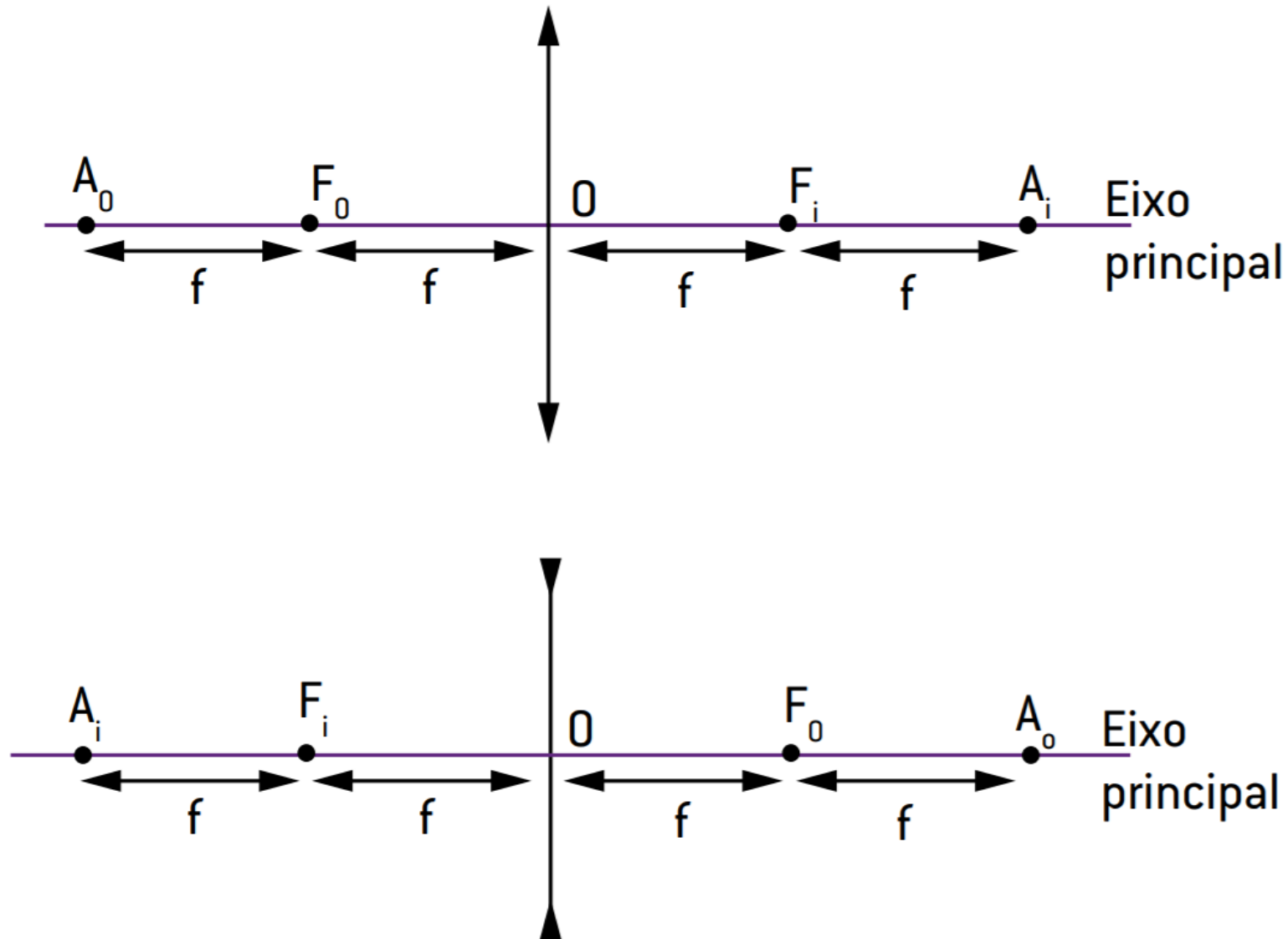
Comportamento Óptico das Lentes

Quando a lente é feita de um material mais refringente que o meio seu comportamento é o representado abaixo.



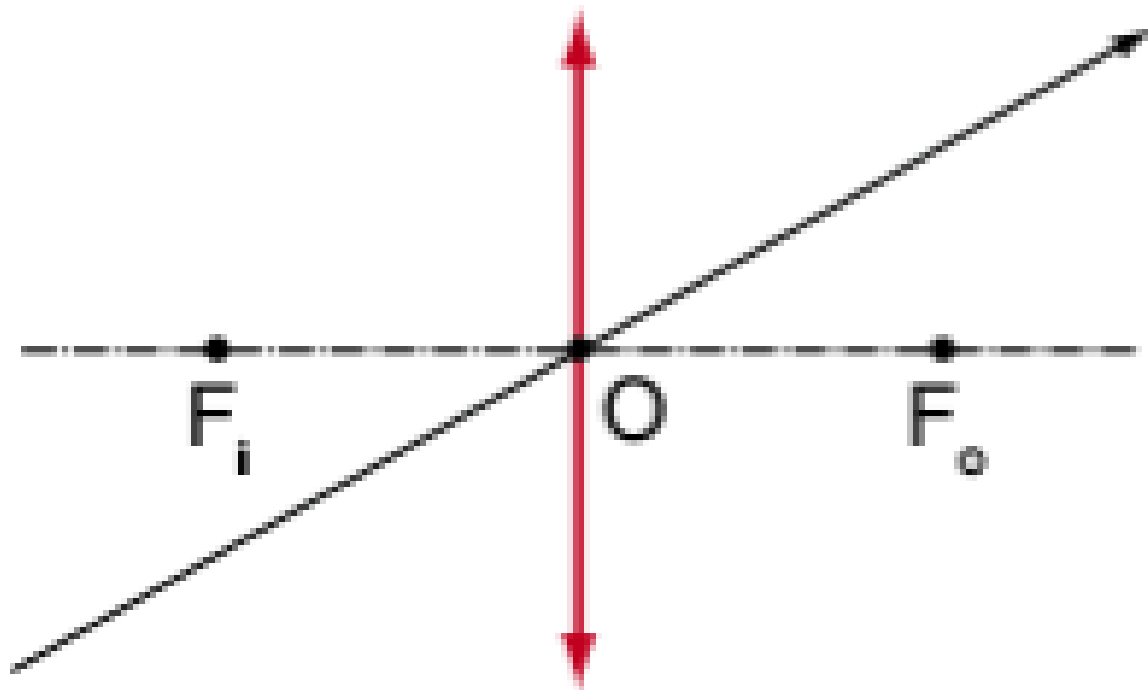
Obs.: Se a lente for menos refringente que o meio o comportamento será oposto.

Elementos de uma Lente Esférica

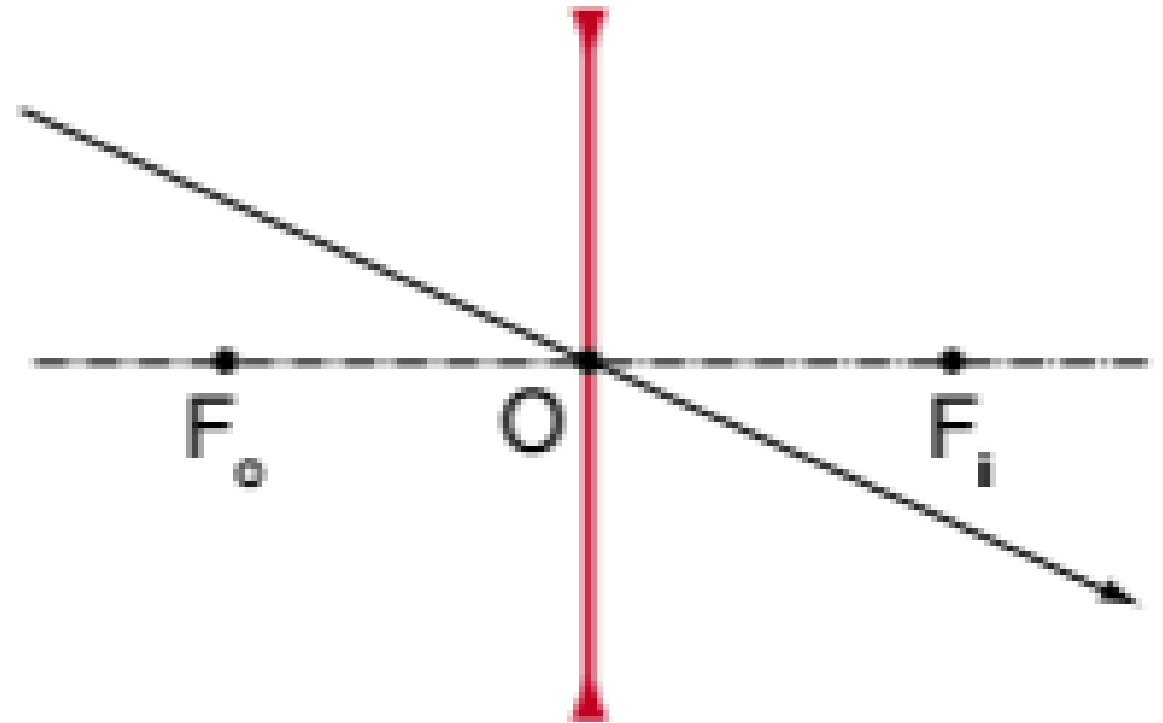


Raios Notáveis (Centro Óptico)

Convergente

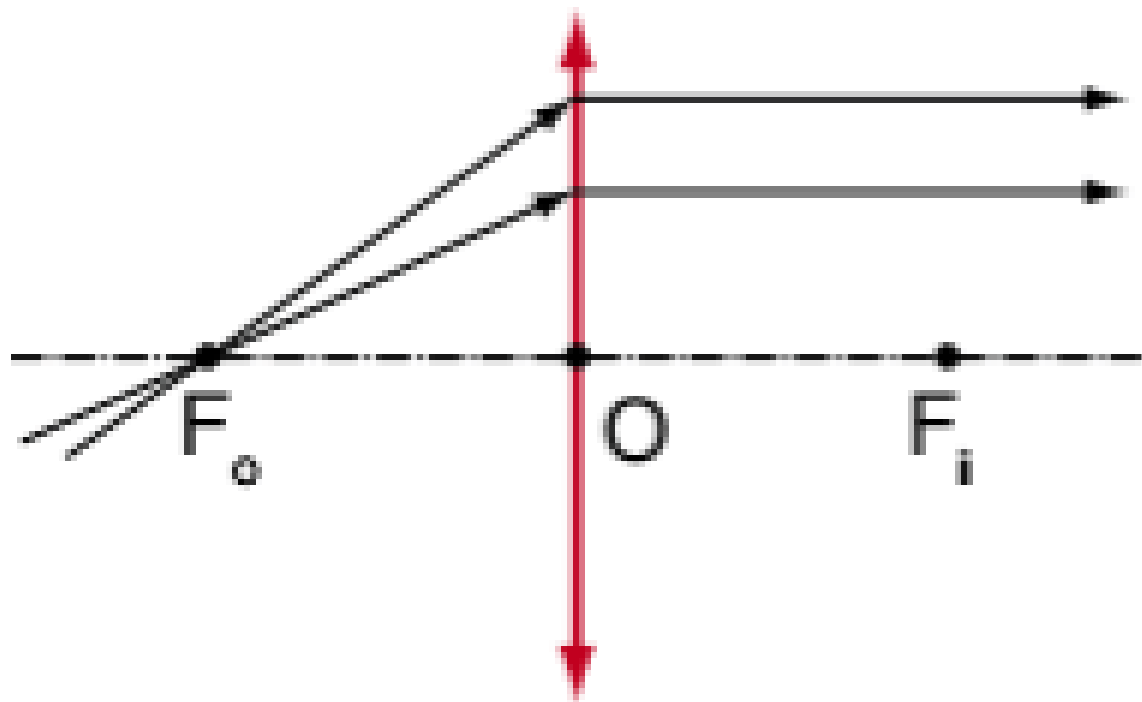


Divergente

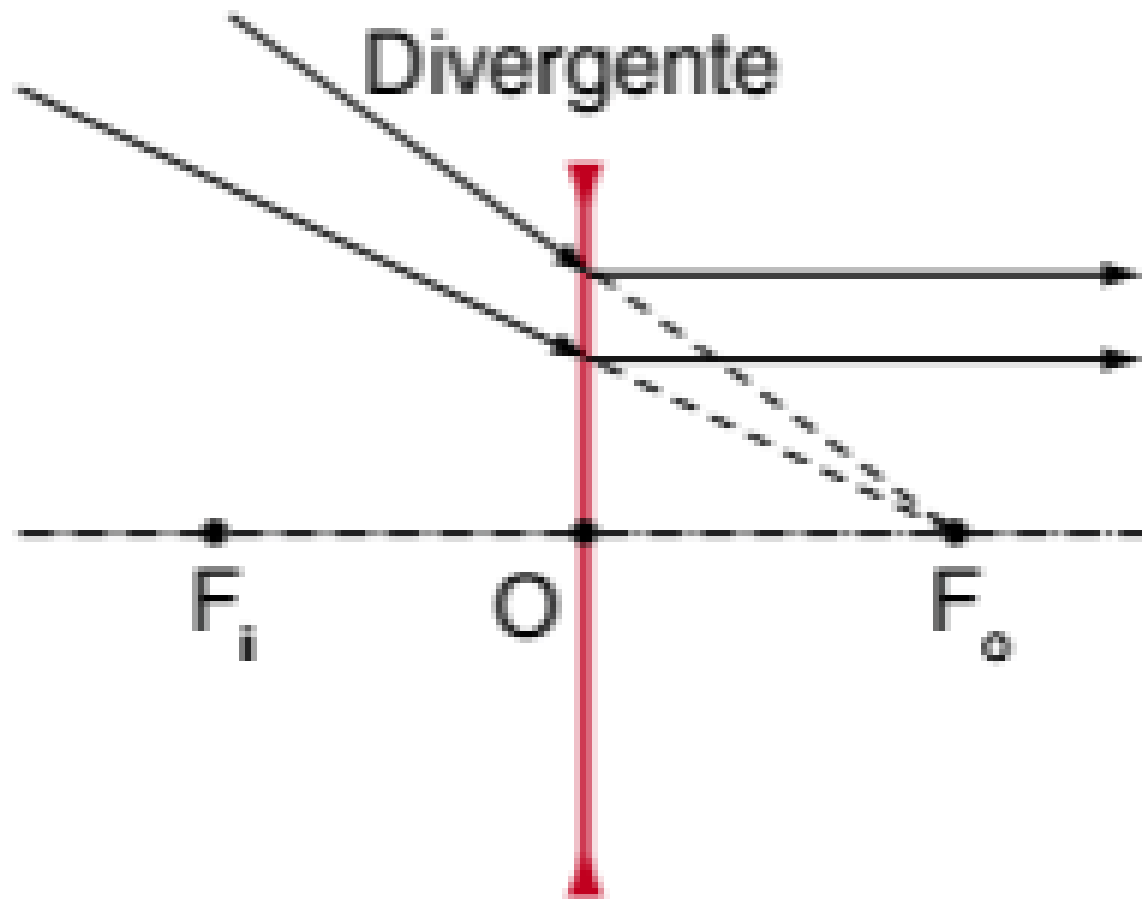


Raios Notáveis (Direção do Foco)

Convergente

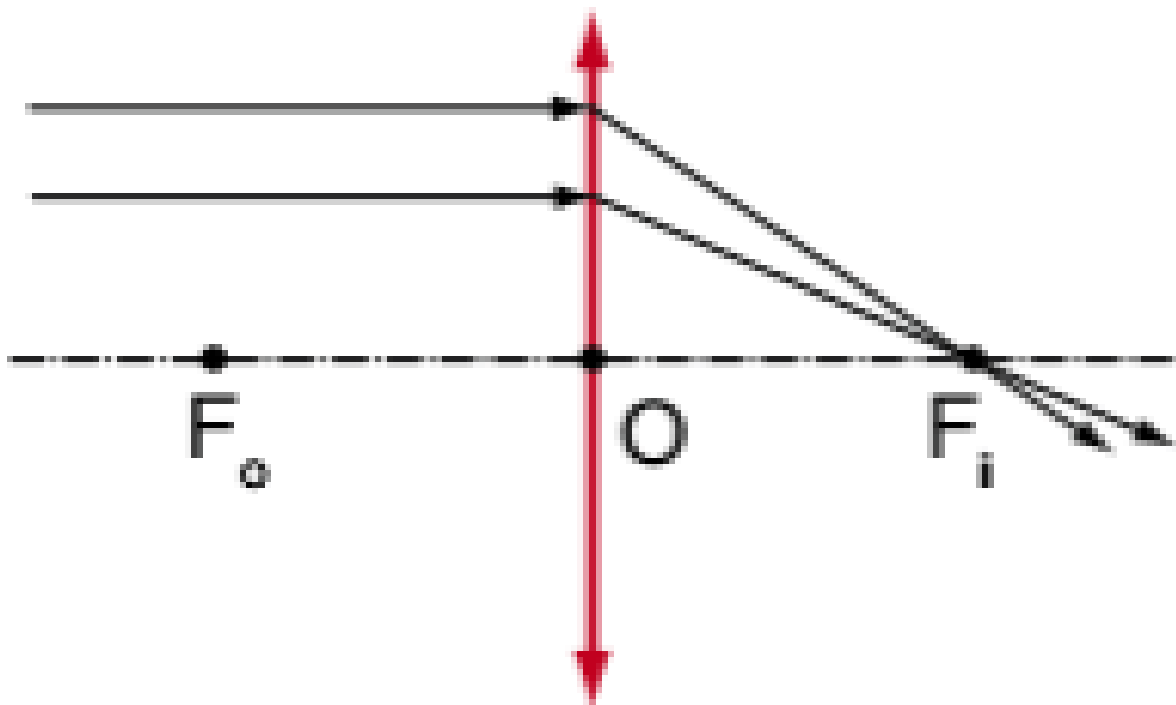


Divergente

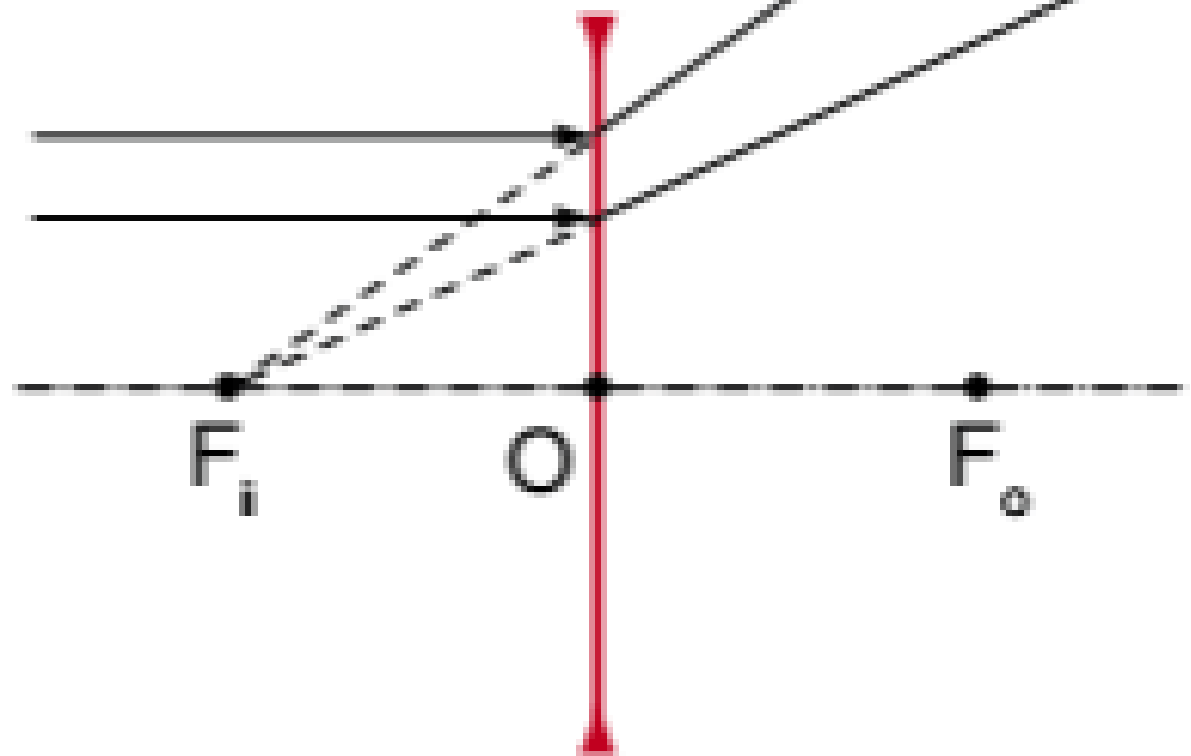


Raios Notáveis (Paralelo ao Eixo)

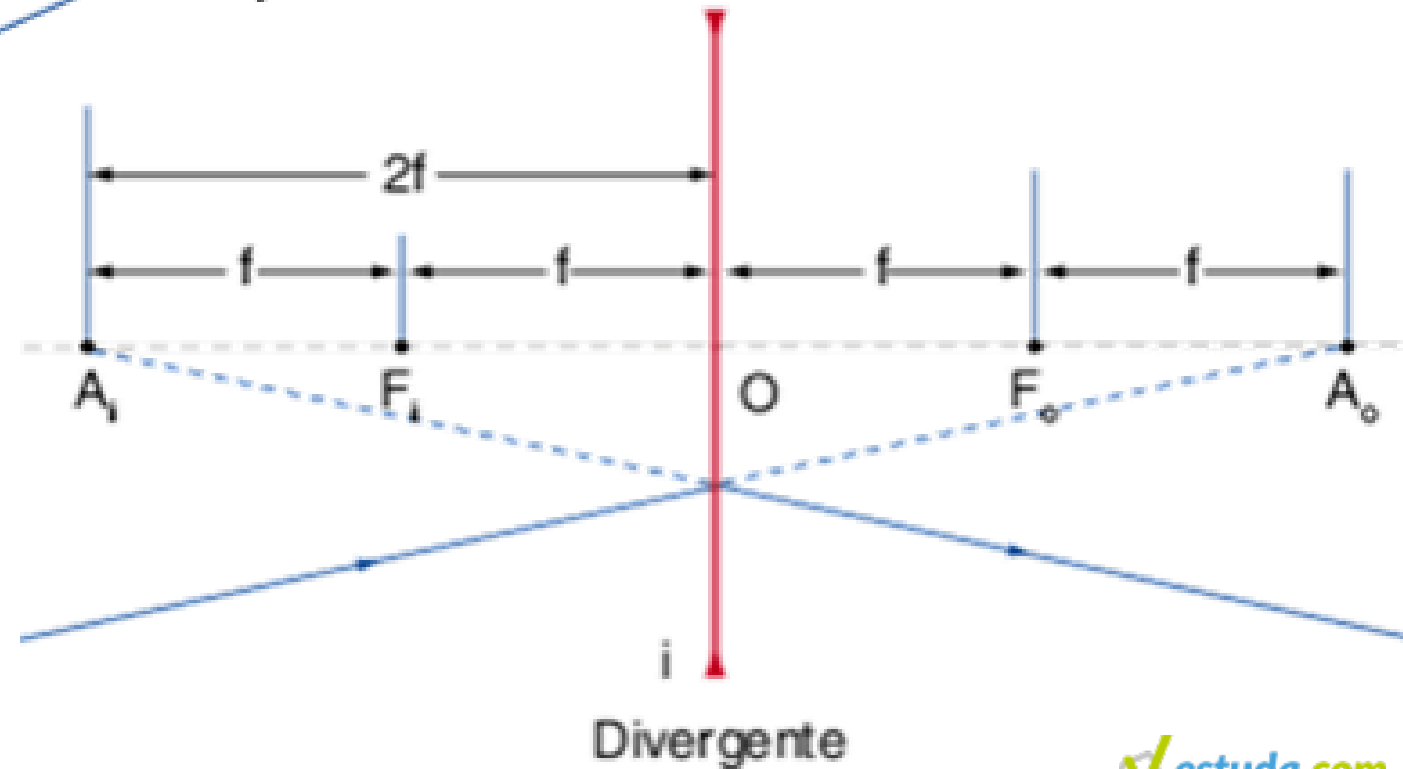
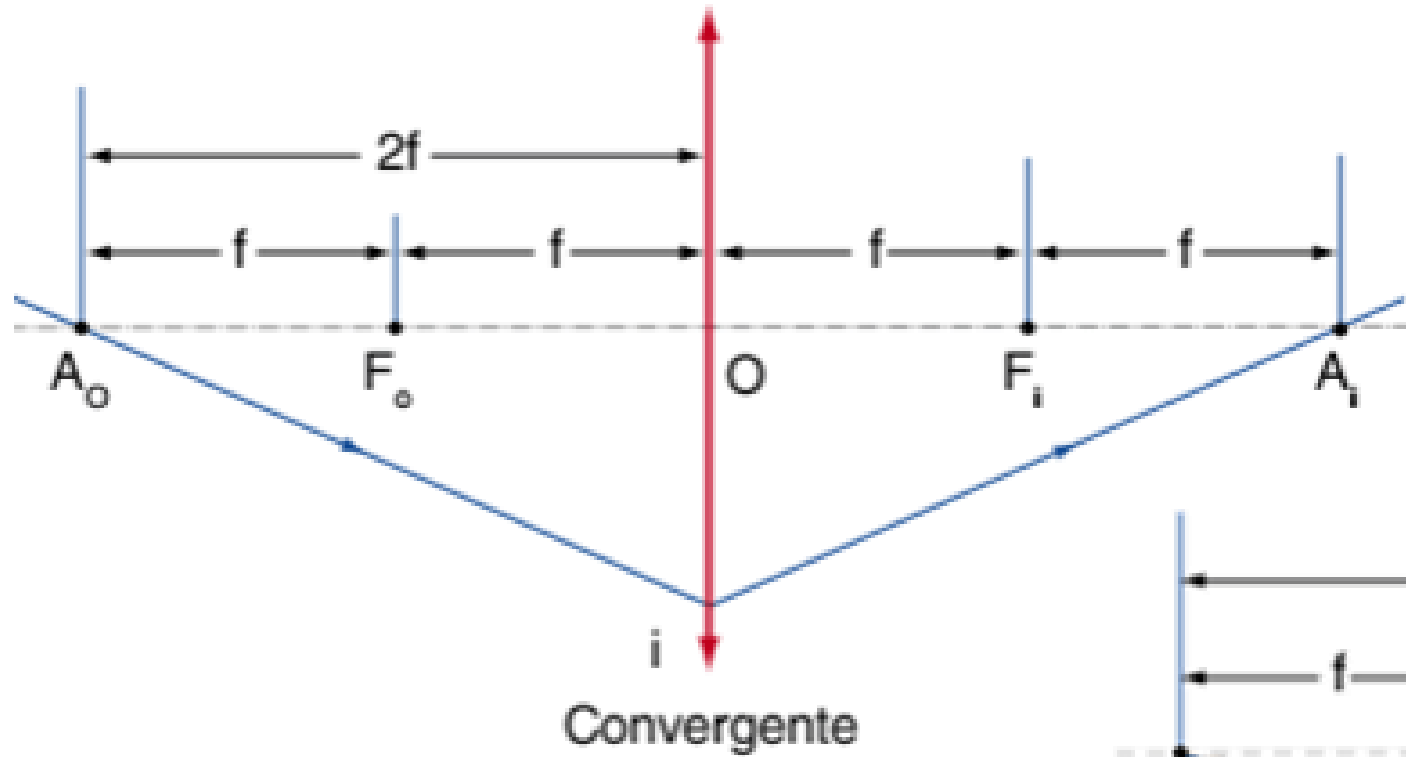
Convergente



Divergente



Raios Notáveis (Direção Antiprincipal)

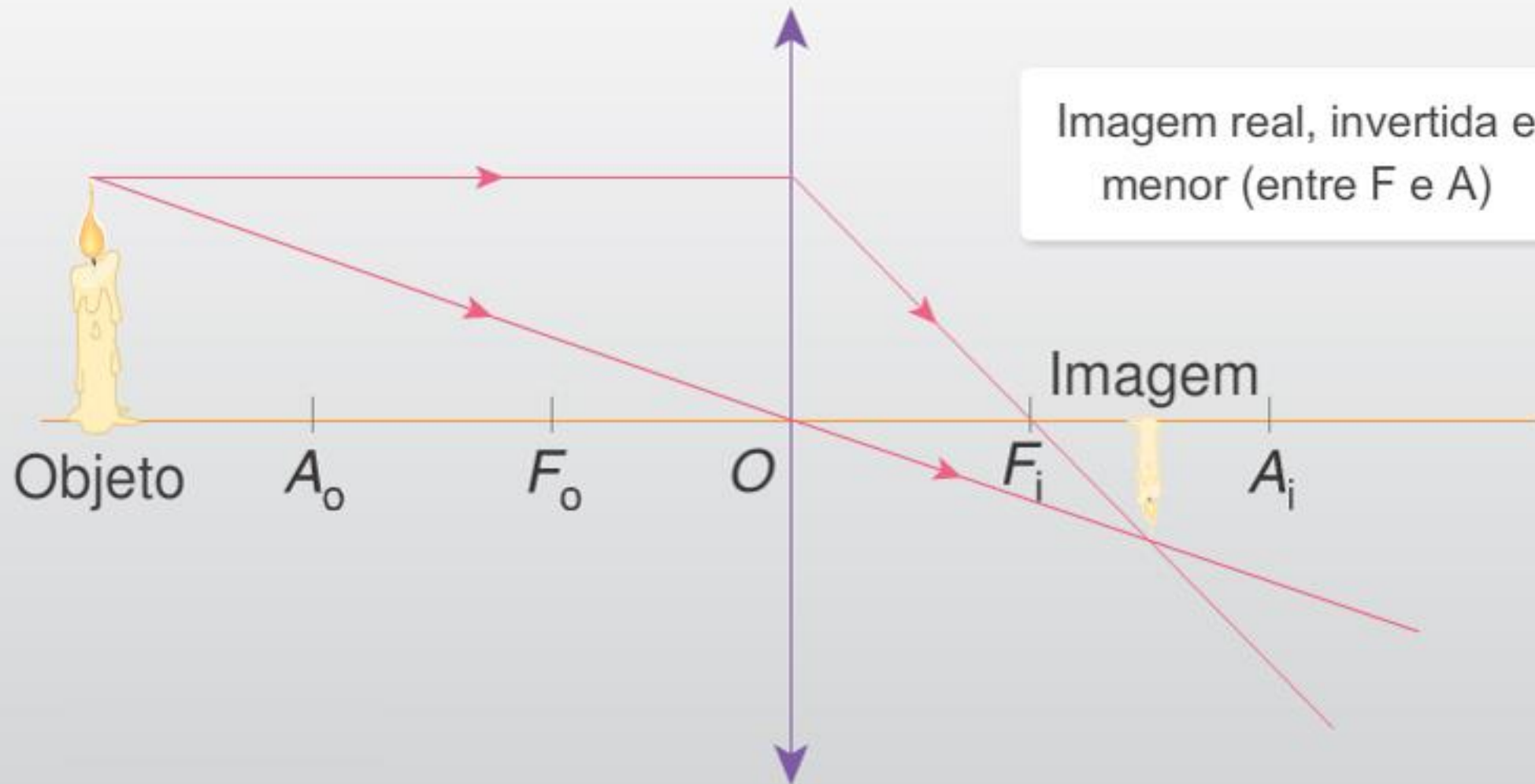


Lente Convergente



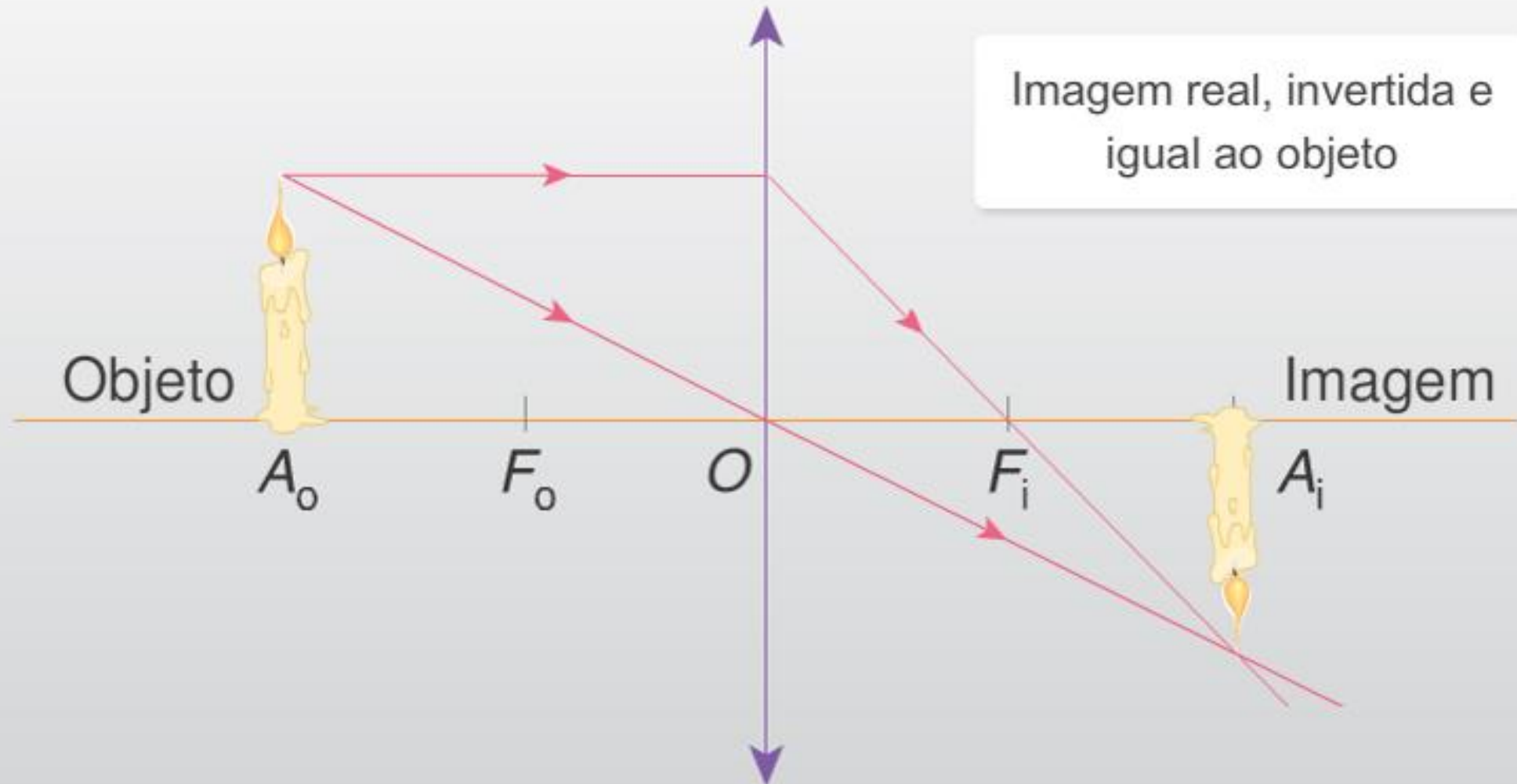
Lente Convergente (Caso 1)

Objeto colocado antes do ponto A (anti-principal)



Lente Convergente (Caso 2)

Objeto colocado no ponto anti-principal (A)



Lente Convergente (Caso 3)

Objeto colocado entre A(anti-principal) e F(foco)

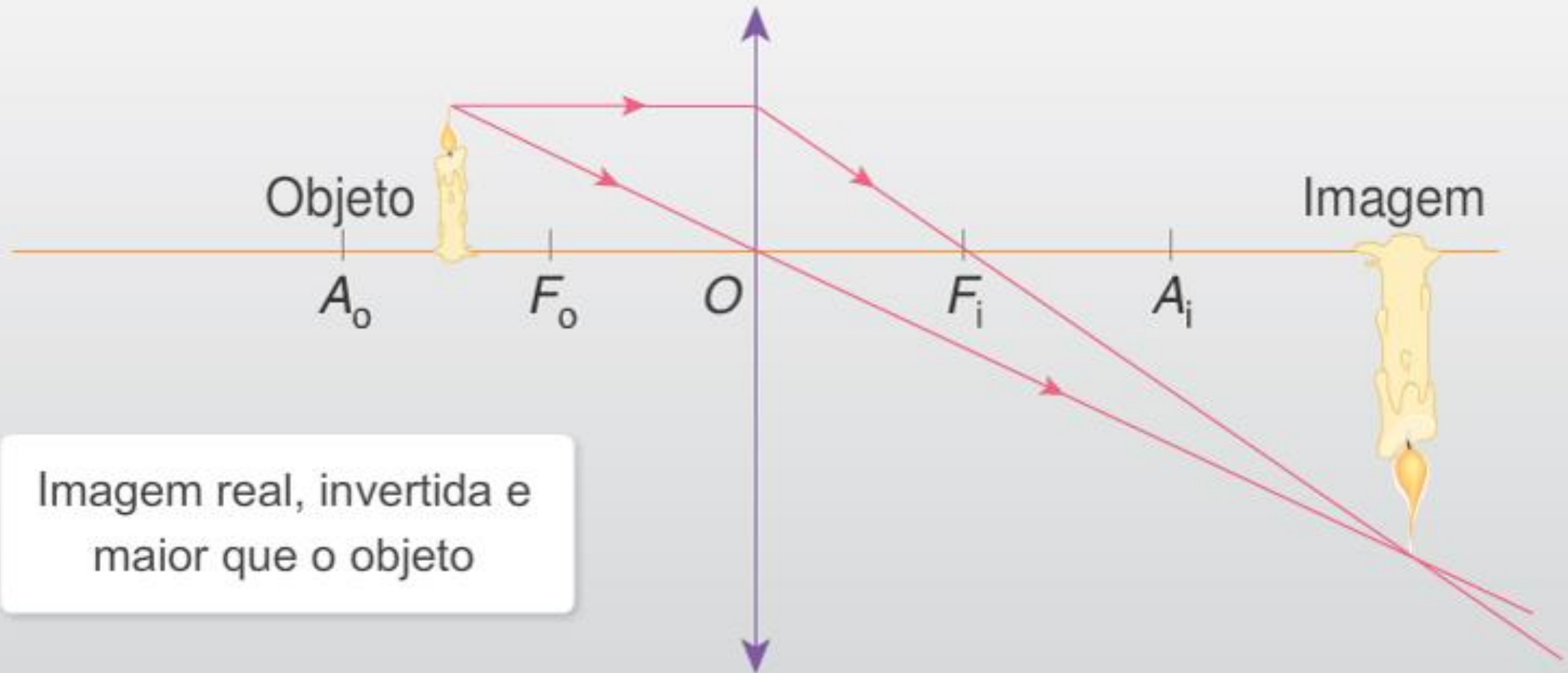
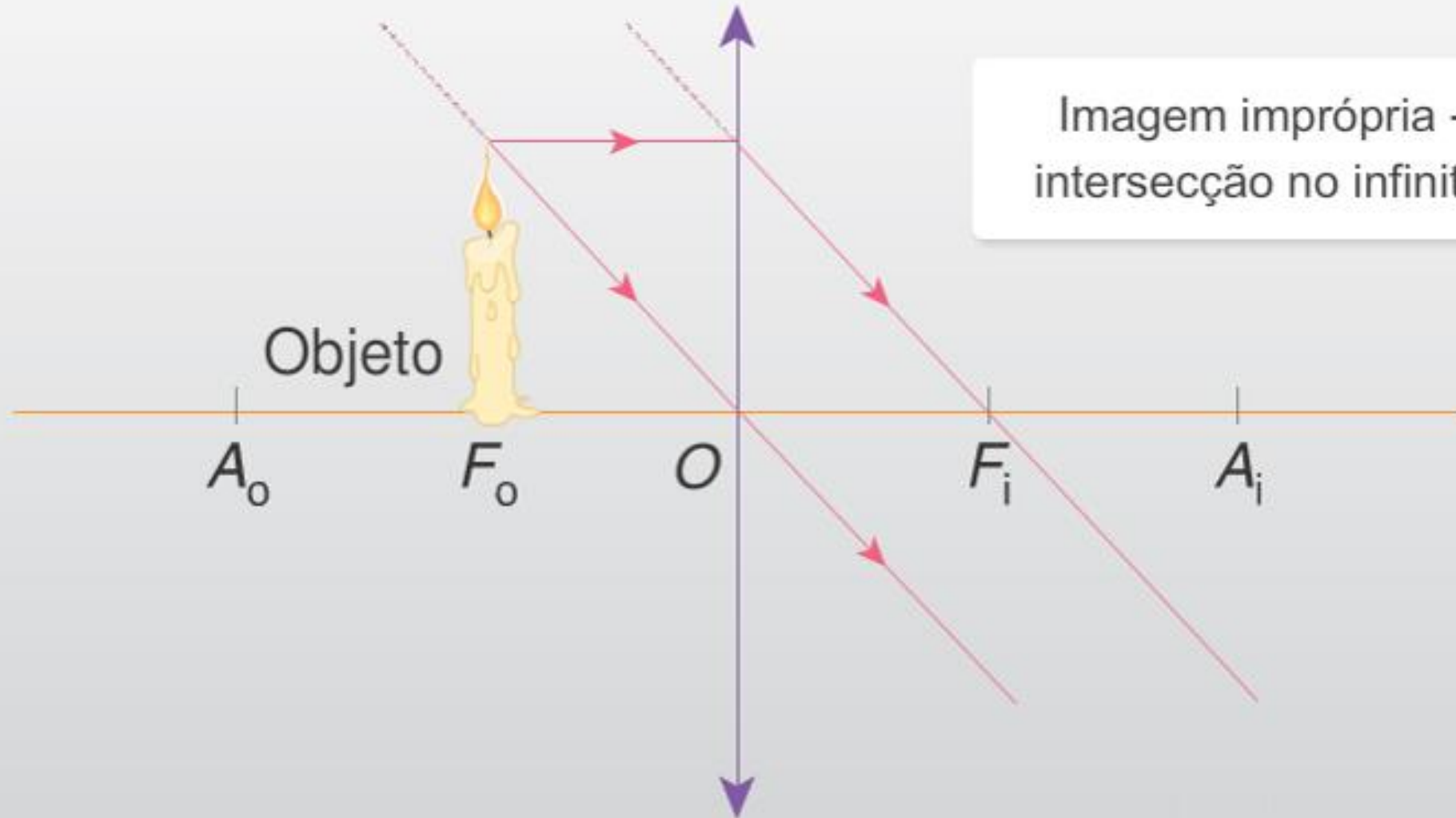


Imagem real, invertida e maior que o objeto

Lente Convergente (Caso 4)

Objeto colocado no F (foco) da lente



Lente Convergente (Caso 5)

Objeto colocado entre o F(foco) e O(centro óptico)

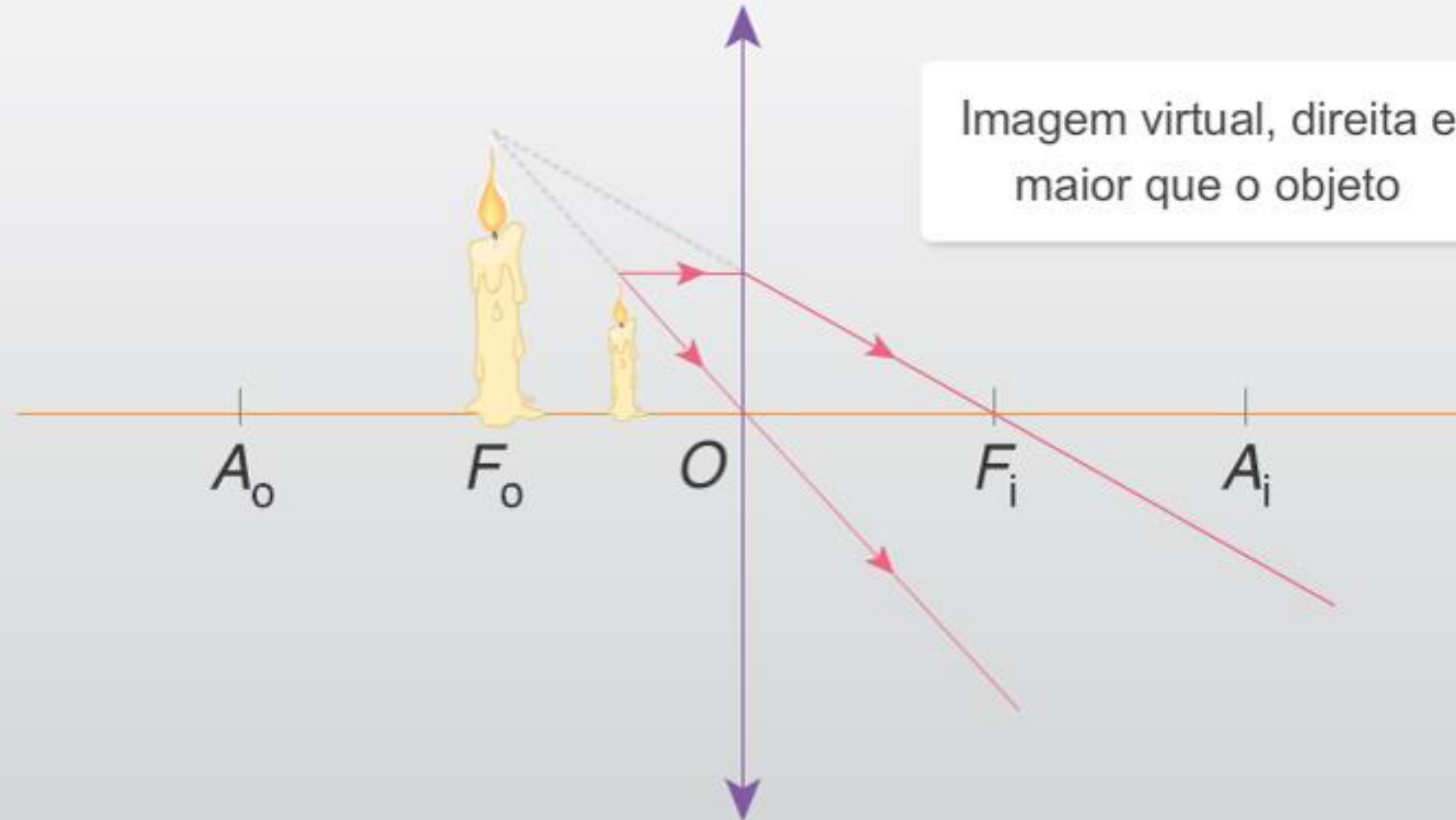


Imagem virtual, direita e maior que o objeto

Lente Divergente



Lente Divergente (Caso único)

Não importa o posicionamento do objeto

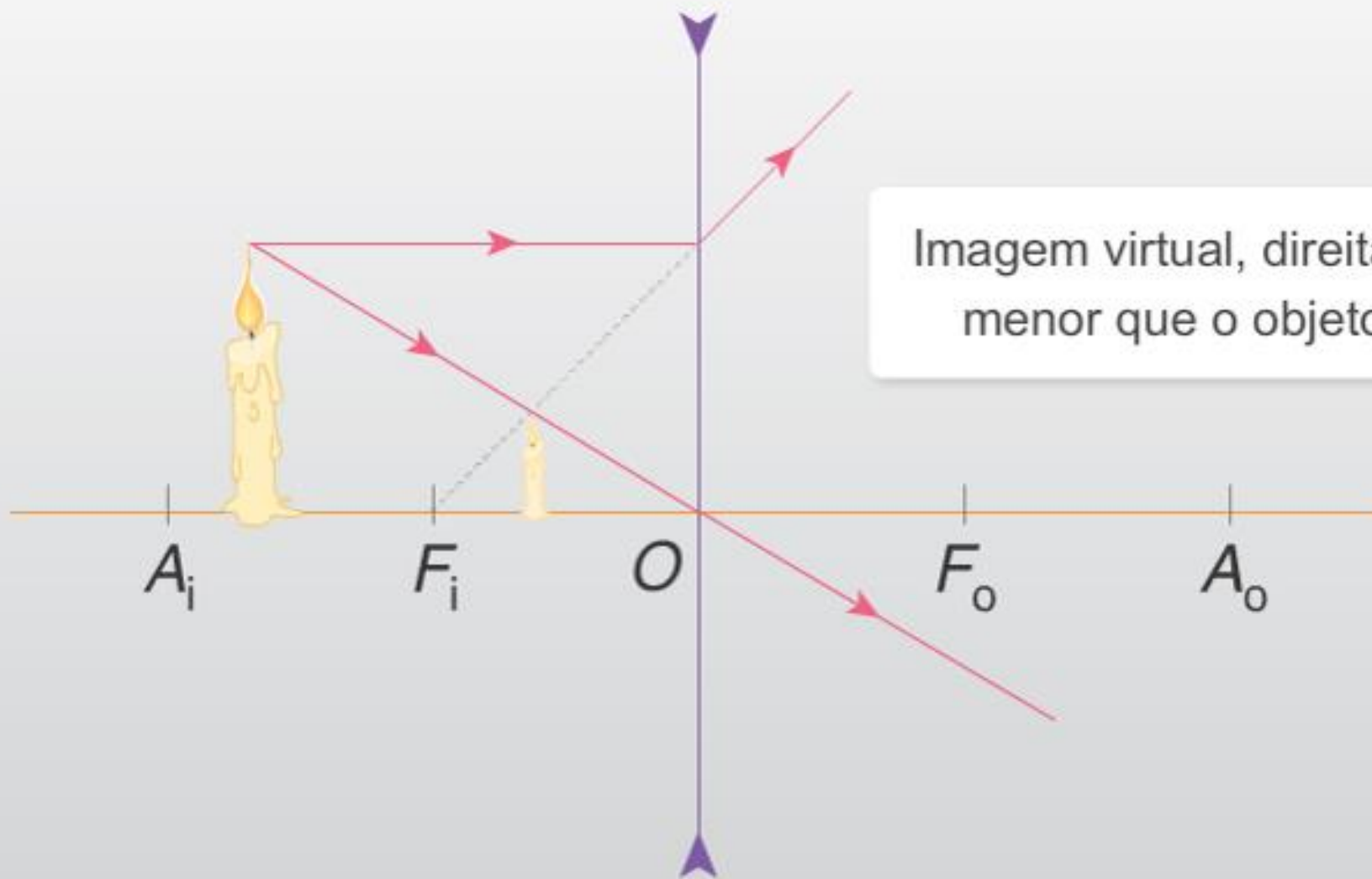


Imagem virtual, direita e menor que o objeto

Equações

Equação de Gauss

$$\frac{1}{f} = \frac{1}{p} + \frac{1}{p'}$$

f - distancia focal;
p - distancia objeto-lente;
p' - distancia imagem-lente;

Equação do aumento linear transversal

$$A = \frac{i}{o} = \frac{-p'}{p} = \frac{f}{f - p}$$

o - tamanho do objeto;
i - tamanho da imagem.

Vergência

Lente Convergente:

$$f > 0$$

Lente Divergente:

$$f < 0$$

Vergência da
Lente:

$$(V = 1/f)$$

Medida em dioptrias e
distância focal em metros

$V > 0$ - Convergente

$V < 0$ - Divergente

OBRIGADO!

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Física