

Ecuación de los espejos

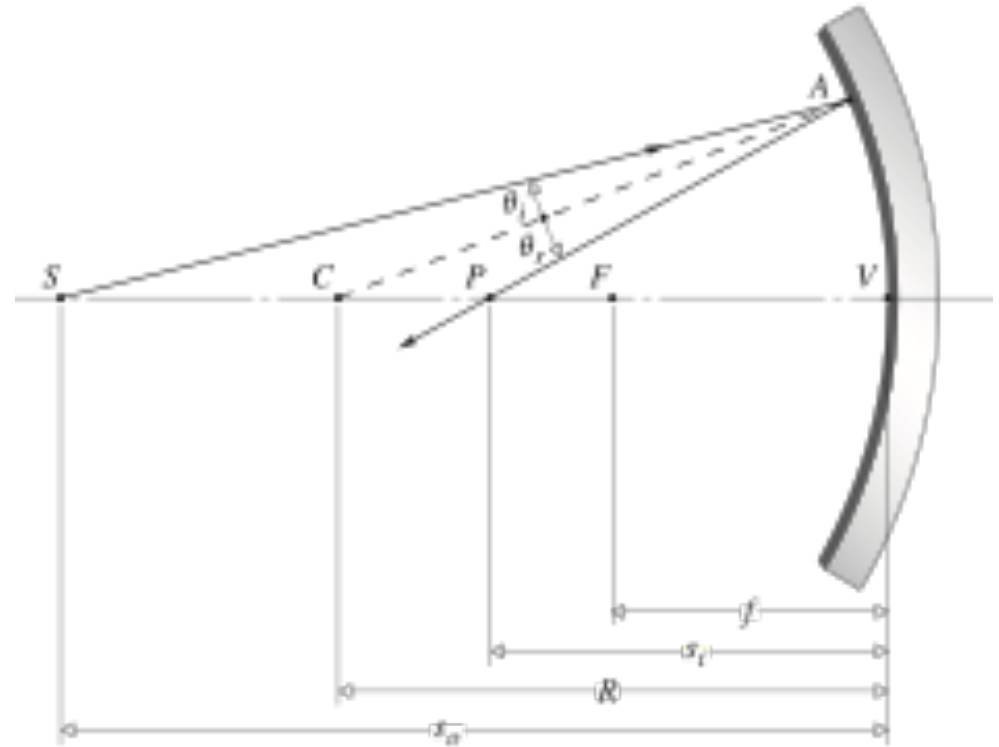
Espejos

- De la figura tenemos

$$\frac{\overline{SC}}{\overline{SA}} = \frac{\overline{CP}}{\overline{PA}}$$

$$\overline{SC} = s_o - |R| \quad \text{y} \quad \overline{CP} = |R| - s_i$$

$$\overline{SC} = s_o + R \quad \text{y} \quad \overline{CP} = -(s_i + R)$$



Espejos

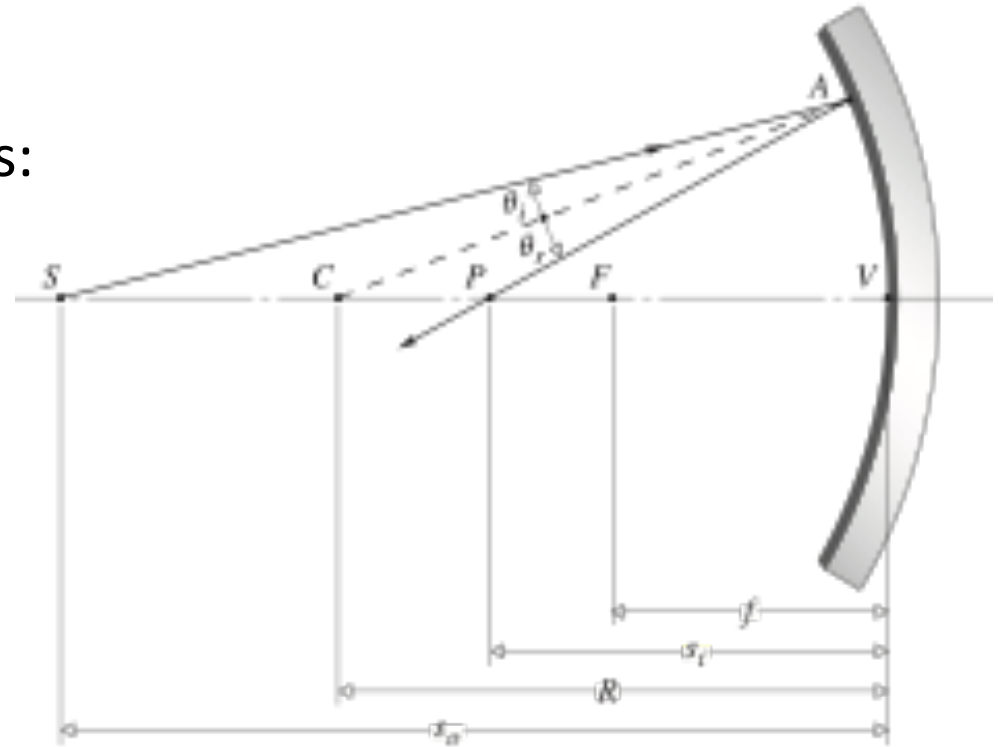
- En aproximación paraxial tenemos:

$$\overline{SC} \approx s_o, \overline{PA} \approx s_i$$

- Entonces

$$\frac{s_o + R}{s_o} = -\frac{s_i + R}{s_i}$$

$$\frac{1}{s_o} + \frac{1}{s_i} = -\frac{2}{R}$$



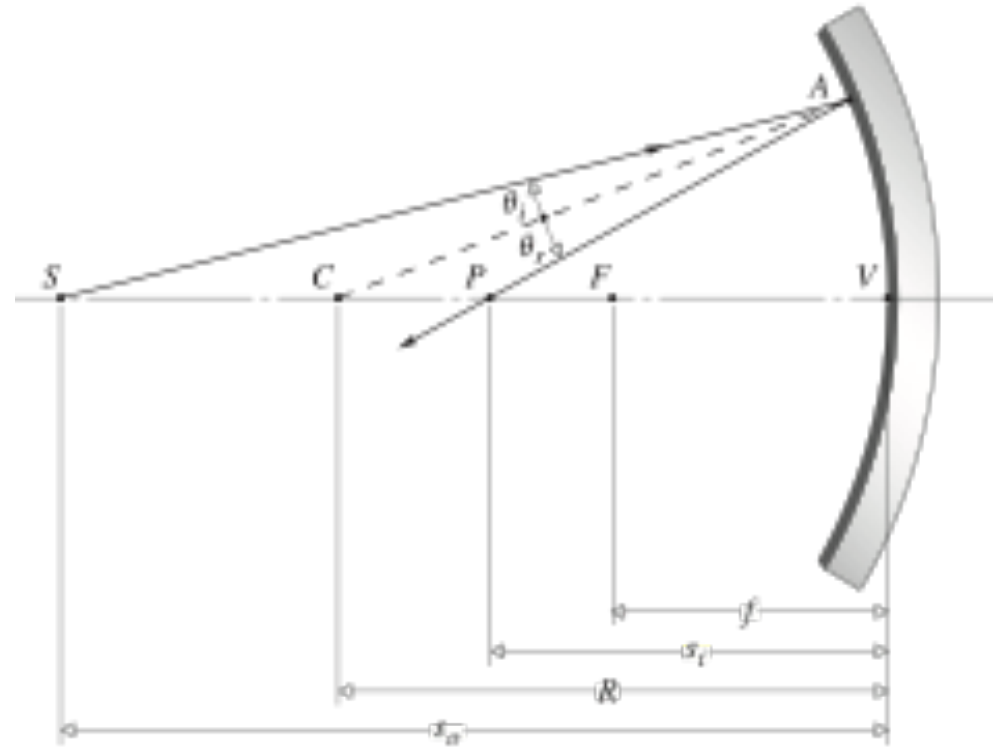
Espejos

- Como:

$$f_o = f_i = -\frac{R}{2}$$

- Entonces:

$$\frac{1}{s_o} + \frac{1}{s_i} = \frac{1}{f}$$



Espejos

TABLE 5.4 Sign Convention for Spherical Mirrors

Quantity	Sign	
	+	-
s_o	Left of V , real object	Right of V , virtual object
s_i	Left of V , real image	Right of V , virtual image
f	Concave mirror	Convex mirror
R	C right of V , convex	C left of V , concave
y_o	Above axis, erect object	Below axis, inverted object
y_i	Above axis, erect image	Below axis, inverted image

Espejos

TABLE 5.5 Images of Real Objects Formed by Spherical Mirrors

..... Concave				
Object		Image		
Location	Type	Location	Orientation	Relative Size
$\infty > s_o > 2f$	Real	$f < s_i < 2f$	Inverted	Minified
$s_o = 2f$	Real	$s_i = 2f$	Inverted	Same size
$f < s_o < 2f$	Real	$\infty > s_i > 2f$	Inverted	Magnified
$s_o = f$		$\pm \infty$		
$s_o < f$	Virtual	$ s_i > s_o$	Erect	Magnified
..... Convex				
Object		Image		
Location	Type	Location	Orientation	Relative Size
Anywhere	Virtual	$ s_i < f ,$ $s_o > s_i $	Erect	Minified