

Spherical Mirrors

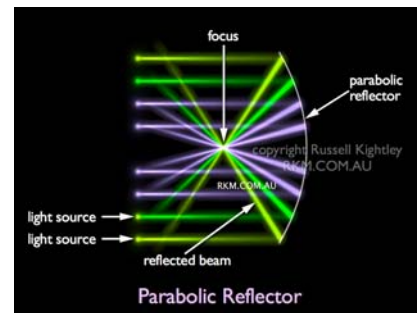
Spherical Mirrors

- Spherical Mirrors reflect light.
- The ideas and principles of ray optics used with mirrors use reflection laws.
- Mirrors can create both real and virtual images that are either reduced or enlarged depending upon the location of the object.
- A mirror has two sides and two focal lengths on either side of the mirror.
- The positive focal point is in front of the mirror while the negative focal point is located behind the mirror.

Types of Mirrors

- 1.) *Concave* (converging) mirrors reflect light rays initially parallel to the principal axis so that the rays appear to converge to a focal point in front of the mirror.
- 2.) *Convex* (diverging) mirrors reflect light rays initially parallel to the principal axis so that the rays converge to a focal point located behind the mirror.

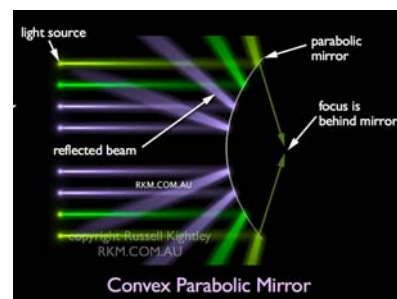
ConCAVE Mirror



ConCAVE Mirror



ConVEX Mirror

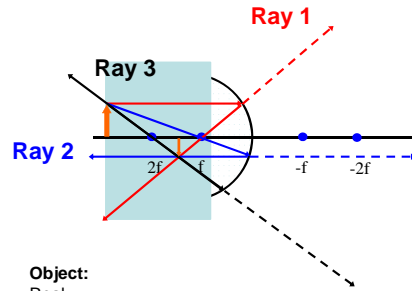


Ray Diagrams Mirrors

To draw ray diagrams for mirrors use two of the following rays:

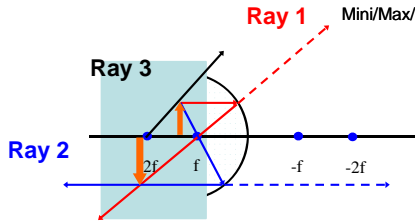
1. From the tip of the object horizontally toward the mirror, reflect the real ray through the focal point . . . extend the virtual ray behind the mirror.
2. From the tip through the focal point toward the mirror, reflect the real ray horizontally off of the mirror . . . extend the virtual ray behind the mirror.
3. From the tip through $(\pm) 2f$ toward the mirror, reflect back on itself . . . extend the virtual ray behind the mirror.

Concave Mirrors:
Converge light
Have + focal points



Object:
Real
Inverted
Minimized

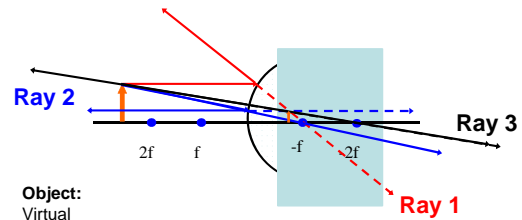
Practice



Object:
Real
Inverted
Maximized

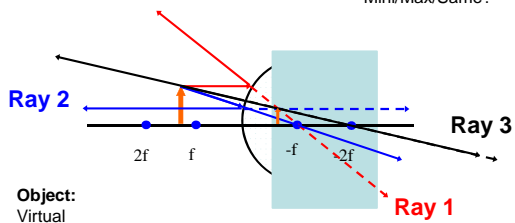
Object:
Real/Virtual?
Inverted/Upright?
Mini/Max/Same?

Convex Mirrors:
Diverge light
Have - focal points



Object:
Virtual
Upright
Minimized

Practice



Object:
Virtual
Upright
Minimized

Object:
Real/Virtual?
Inverted/Upright?
Mini/Max/Same?