13-3 and 13-4 Notes
Mirrors

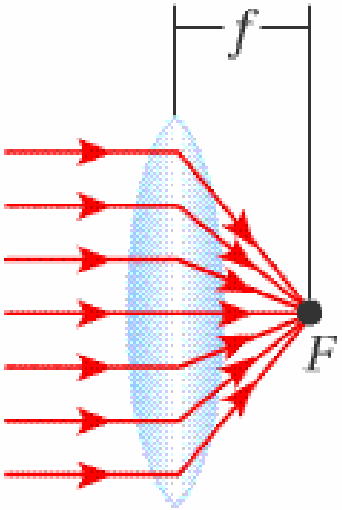
- Concave Mirror – An inwardly curved, mirrored surface that is a portion of a sphere and that converges incoming light.
- Concave mirrors create a magnified image.
- How big the image appears depends on how curved the mirror.
- R is the radius of curvature
- C is the center of curvature

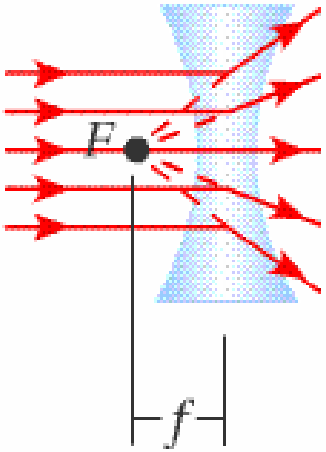
- Real image – an image formed when rays of light actually intersect at a single point.
- Real image is a clear crisp image that is formed.
- Image location can be predicted with the mirror equation
- $1 / p + 1 / q = 1 / f$
- $1 / p + 1 / q = 2 / R$
- p = object distance; q = image distance
- f = focal length; R = Radius

- Unlike flat mirrors, the images formed are not the same size as the original image.
- How big or small they appear can be calculated:
- $M = h' / h$
- $M = q / p$
- M = Magnification; h' = image height
- h = object height; q = image distance
- p = object distance

- If M is + then the image is Upright and Virtual.
- If M is – then the image is Inverted and Real

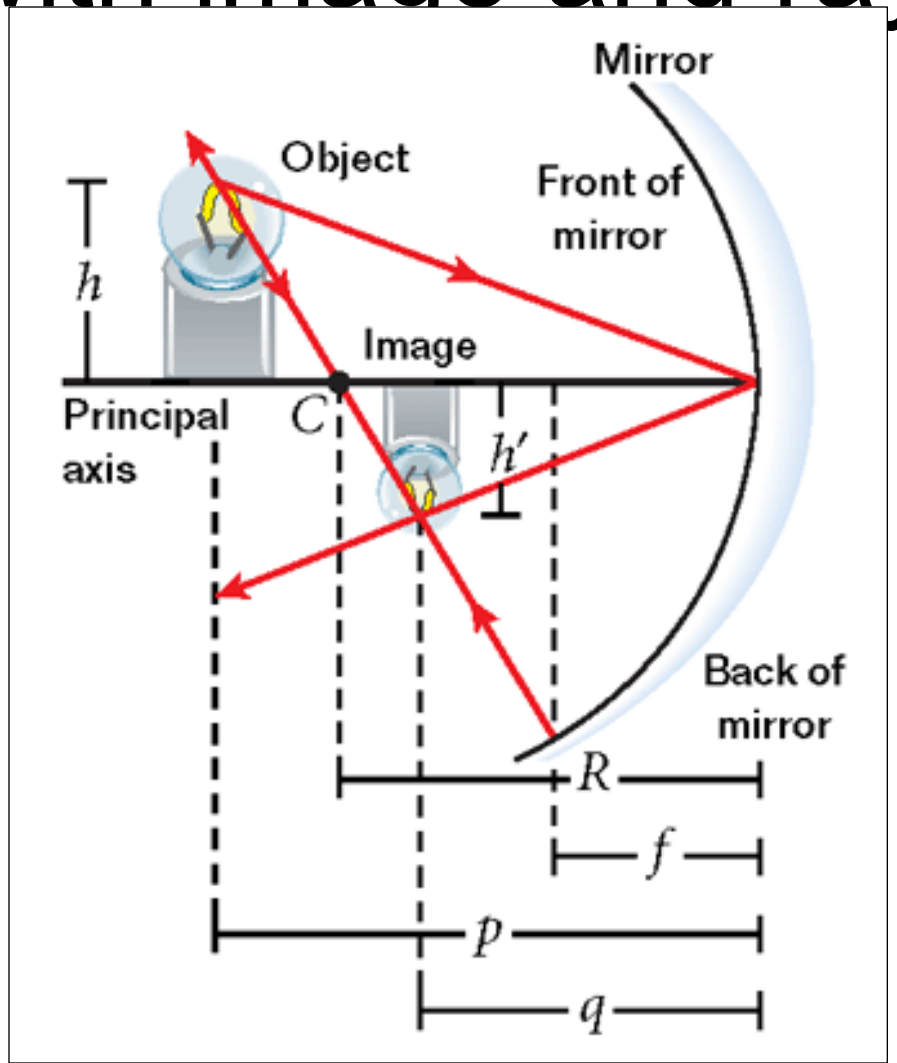
- A concave mirror has a focal length of 30 cm. Calculate the image position of a cologne bottle placed in front of the mirror at a distance of 50 cm. Calculate the magnification of this image.





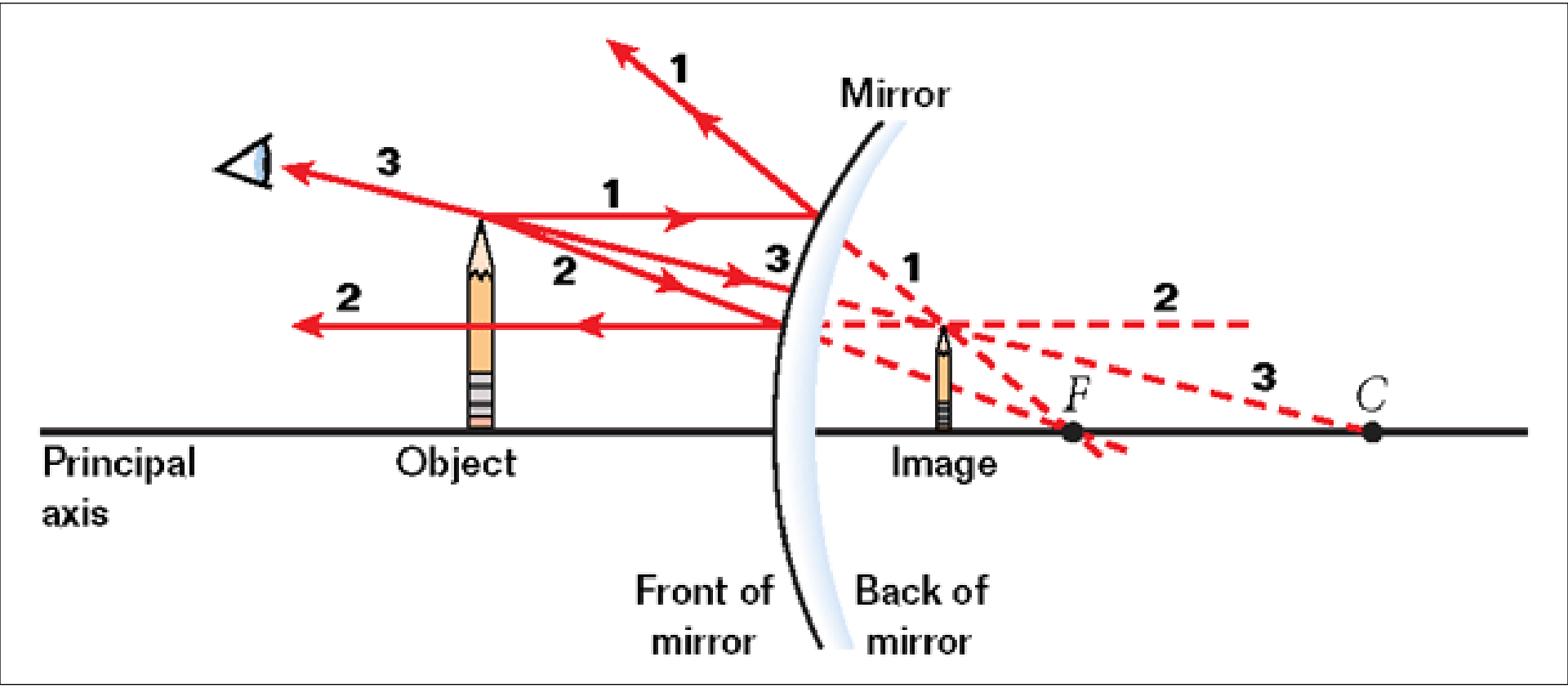
Play

Must draw the concave mirror with image and rays:



- Convex Mirror – An outwardly curved mirror that is a portion of a sphere that diverges incoming light rays.
- The image appears smaller.
- The focal point and center of curvature are behind the mirror's surface.
- A virtual, upright image forms where three rays meet.
- Magnification for convex mirrors is always less than 1.

- Must Draw for test: Convex



- Adding primary colors creates white.
- An object of a particular color, such as a green leaf, absorbs light of all colors except for green which it reflects.
- So since there are Red, Orange, Yellow, Green, Blue, Indigo, and Violet the leaf absorbs all these except Green.
- For test you must list the colors absorbed and colors reflected. Remember colors by ROYGBIV.

- One type of telescope uses curved mirrors and small lenses to form an image – this is called a reflecting telescope.
- Another type of telescope uses only lenses to form an image and is called a refracting telescope.