Question #32217

A convex mirror has a radius of 20cm. An object is placed 30 cm in front of

the mirror. Determine where the image will appear?

Solution:

The position of the image defined according to the Gaussian mirror equation

$$\frac{1}{d_0}+\frac{1}{d_i}=\frac{1}{f}$$

where

d_0 is the object distance

d_i is the image distance

f is the focal length

$$d_i=\frac{fd_0}{d_0-f}$$

The focal length is defined by the following formula:

$f=\frac{R}{2}$ where R is the radius of the mirror:

$$d_i=\frac{Rd_0}{2d_0-R}$$

$$d_i=\frac{20*30}{2*30-20}=15\ cm$$

Answer: 15 cm.