Answer on Question #47001-Physics-Optics

Where is the image located when an object is 60 cm from a convex mirror with a focal length of 20 cm?

15 cm behind

30 cm behind

60 cm behind

15 cm in front

Solution

Here $u = -ve, f = +ve$.

$$\frac{1}{u} + \frac{1}{v} = \frac{1}{f}.$$

$$\frac{1}{-60} + \frac{1}{v} = \frac{1}{20} \rightarrow v = 15\ cm.$$

The $+ve$ sign indicates that image is virtual and behind the mirror.

Answer is 15 cm behind.