Answer on question \#52720, Physics, Optics
Question How far should an object be from a concave mirror of radius 30 cm to form a real image $1 / 6$ of its size?
85 cm
95 cm
105 cm
115 cm

Solution Focal length of the mirror is $f=R / 2=15 \mathrm{~cm}$. The magnification is

$$
M=\frac{h_{i}}{h_{o}}=\frac{d_{i}}{d_{o}}=\frac{1}{6}
$$

so we know that $d_{i}=d_{o} / 6$ now we can use mirror equation to find $d_{o}$ distance of object.

$$
\begin{gathered}
\frac{1}{f}=\frac{1}{d_{o}}+\frac{6}{d_{o}}=\frac{7}{d_{o}} \\
d_{o}=7 f=7 \cdot 15=105 \mathrm{~cm}
\end{gathered}
$$

Answer is 115 cm .

