## Answer on Question \#52719-Physics-Optics

What is the image distance of an object placed 20 co from a converging lens of focal length 15 cm ?
30 cm

40 cm

60 cm

70 cm

## Solution

The lens equation expresses the quantitative relationship between the object distance $d_{o}$, the image distance $d_{i}$, and the focal length $f$. The equation is stated as follows:

$$
\frac{1}{f}=\frac{1}{d_{i}}+\frac{1}{d_{0}}
$$

The image distance is

$$
d_{i}=\frac{1}{\frac{1}{f}-\frac{1}{d_{0}}}=\frac{1}{\frac{1}{15}-\frac{1}{20}}=60 \mathrm{~cm} .
$$

Answer: 60 cm.

