Answer on question #63181, Physics / Optics

Question How far from a converging lens of focal length 30 cm must an object be placed so the image will be virtual and 3.0 times as large as the object?

Solution Formula for magnification is

$$M = \frac{f}{f - d_0}$$

So we want magnification to be $M = 3$. Hence

$$3 = \frac{30}{30 - d_0}$$

$$90 - 3d_0 = 30$$

$$d_0 = 20$$

So, the object must be placed 20 cm from lens.