Answer on Question 37991, Physics, Optics We will use thin lens formula to solve this problem. As you know

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

where d_o is object distance, d_i is image distance and f is focus length. we are given that $d_i = f + l$, $l = 12$ cm and $d_o = 12$ cm. So we can find

$$\frac{1}{d_o} + \frac{1}{f + l} = \frac{1}{f}$$

$$(f + l + d_o)f = d_o(f + l)$$

$$f^2 + lf - d_o l = 0$$

$$f^2 + 12f - 144 = 0$$

From where we find that physical solution is $f \approx 7.4$ cm.