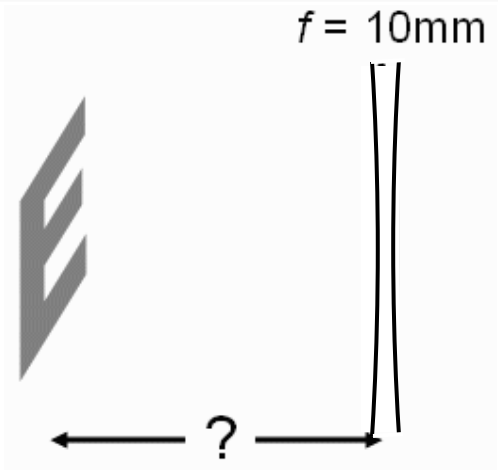
Follow Up

Suppose we replace the converging lens with a diverging lens with focal length of 10mm.

If we still want to get an image magnified by a factor of 5 that is not inverted, how does the object s_{div} compare to the original object distance s_{conv}?



A) $s_{div} < s_{conv}$ B) $s_{div} = s_{conv}$ C) $s_{div} > s_{conv}$ D) s_{div} doesn't exist

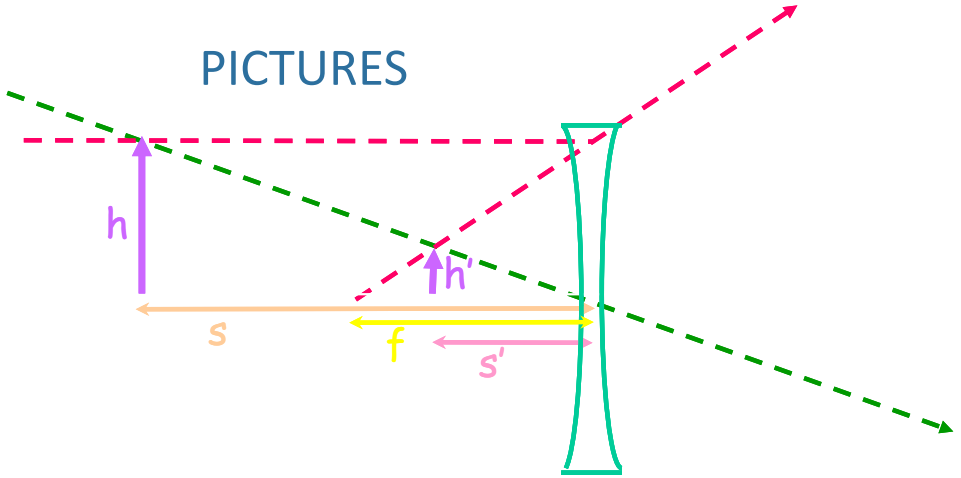
EQUATIONS

$$M = \frac{-f}{s-f} \rightarrow s = f\frac{(M-1)}{M}$$

$$M = +5, \quad f = +10\,mm \rightarrow s = \frac{4}{5}f = 8\,mm$$

s negative ⇒ not real object

PICTURES



Draw the rays: s' will always be smaller than s
Magnification will always be less than 1