Table 9.7 Images formed by a thin converging lens

Object distance (u)	Ray Diagram	Type of image	Image distance (v)	Uses
U ≈ ∞	parallel rays from a distant object	inverted real diminished	<pre>v = f opposite side of the lens</pre>	objective lens of a telescope
u > 2f	object F 2F image	inverted real diminished	f < v < 2f opposite side of the lens	camera; eye
u = 2f	object . F 2F image v	inverted real same size	v = 2f opposite side of the lens	photocopier making equal sized copy
f < u < 2f	object F 2F 2F image	inverted real magnified	v > 2f opposite side of the lens	projector; photograph enlarger
<i>u</i> = <i>f</i>	image at infinity object F parallel rays	upright magnified virtual	image at infinity; same side of the lens	to produce a parallel beam of light, as in a spot light
u <f< td=""><td>object F</td><td>upright magnified virtual</td><td>image is behind the object; same side of the lens</td><td>magnifying glass</td></f<>	object F	upright magnified virtual	image is behind the object; same side of the lens	magnifying glass