

where is the needle placed in front of the conver lens if the image is equal to the size of the object? Also, find the power of the lens.

d $\Rightarrow$

$$v = 50 \text{ cm}$$

$$m = \frac{b'}{b} = -1$$

$$m = \frac{v}{u}$$

$$u = -v = -50 \text{ cm}$$

Thus, needle to be placed at 50 cm in front of the lens.

② using $-\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$, we get

$$\frac{1}{f} = \frac{1}{50} + \frac{1}{50} = \frac{2}{50} = \frac{1}{25} \quad \text{or } f = 25$$

$$P = \frac{100}{f \text{ (in cm)}} = \frac{100}{25} = +4 \text{ D}$$