

$$\text{Image distance, } v = -10 \text{ cm}$$

$$\text{Focal length, } f = -15 \text{ cm}$$

$$\text{Object - distance, } u = ?$$

$$\text{Since } \frac{1}{v} - \frac{1}{u} = \frac{1}{f} \quad \text{or}$$

$$\frac{1}{u} = \frac{1}{v} - \frac{1}{f}$$

$$\frac{1}{u} = \frac{1}{(-10)} - \frac{1}{(-15)} = -\frac{1}{10} + \frac{1}{15}$$

$$\frac{1}{u} = \frac{-3 + 2}{30} = \frac{1}{-30}$$

$$u = -30 \text{ cm}$$

Thus the object distance is 30 cm

$$\text{Magnification, } m = \frac{v}{u}$$

$$m = \frac{-10 \text{ cm}}{-30 \text{ cm}} = \frac{1}{3} = +0.33$$