P # 31

Ch 23 - pg 743

a) $f = -20\ cm$ (diverging)
$d_o = 40\ cm$

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

$$\frac{1}{40\ cm} + \frac{1}{d_i} = \frac{1}{-20\ cm}$$

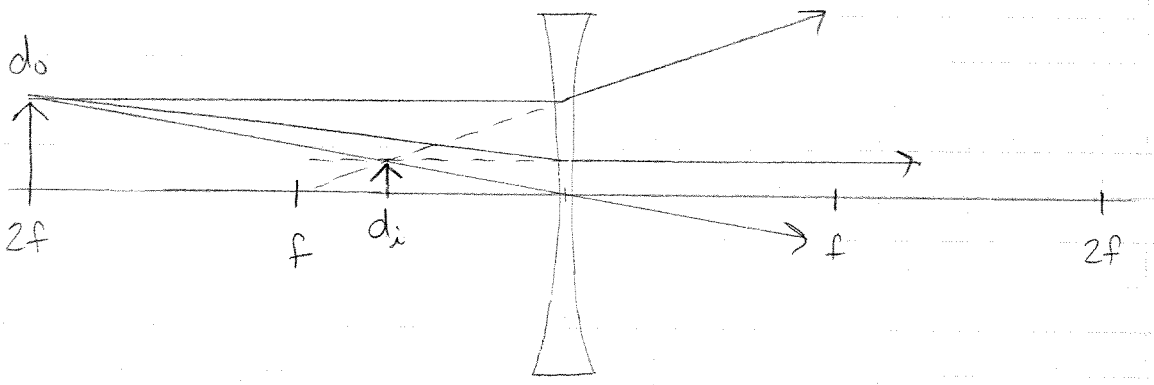
$$(40\ cm)^{-1} + d_i^{-1} = (-20\ cm)^{-1}$$

$$d_i = -13.3\ cm$$

$$m = -\frac{d_i}{d_o} = -\frac{(-13.3)}{40}$$

$$m = .33$$

Virtual, Upright



b) $f = -20\ cm$ (diverging)
$d_o = 20\ cm$

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

$$\frac{1}{(20\ cm)} + \frac{1}{d_i} = \frac{1}{(-20\ cm)}$$

$$(20\ cm)^{-1} + d_i^{-1} = (-20\ cm)^{-1}$$

$$d_i = -10\ cm$$

$$m = -\frac{d_i}{d_o} = -\frac{(-10\ cm)}{20\ cm}$$

$$m = .5$$

Virtual, Upright