Name _____ Period _____

Worksheet 165 (68)- Refraction, Diffraction_Review Optics 3

HCP060810D

$n_1 \sin\theta_1 = n_2 \sin\theta_2$ $\qquad M = \frac{h_i}{h_o} = -\frac{d_i}{d_o} \qquad \frac{1}{f} = \frac{1}{d_o} + \frac{1}{d_i}$

1. A 60 cm tall object is placed 5 cm from a diverging lens with f = -18 cm. What is d_i, M, h_i? (d_i = -3.91 cm M = .7826 h_i = 46.96 cm)

2. A real image -10 cm tall is 42.86 cm from a converging lens with a focal length of 30 cm. How far is the object from the lens? (100 cm)

3. How tall is the object in the example above? (23.33 cm)

4. An object is magnified by a factor of -4. If the image is 30 cm from the lens, what is the focal length of the lens? (+ 6 cm)

5. A 15 cm tall object is located 20 cm from a double concave lens with a focal length of -8 cm. What is the image height? (4.29 cm)

6. Light travels through a particular liquid at 2.25 * 10^8 m/s. What is the index of refraction for this liquid? (1.33)