OPHW1-6 Soln)

f = +90 cm (converging lens) $h_0 = 3.2$ cm o is positive (object is to the left of the lens, also it's real) $h_i = -4.5$ cm (image is inverted) Find i and o: First find $M = h_i/h_0 = -4.5/3.2 = -1.41 = -\frac{i}{0}$ So, i = 1.41o. Substitute into the thin lens equation: $\frac{1}{o} + \frac{1}{(1.41o)} = \frac{1}{f}$ $\frac{1}{o} + \frac{1}{(1.41o)} = \frac{1}{g_0}$ $1.71_o = \frac{1}{g_0}$ o = 90*1.71 = +153.8 cm Then, i = 1.41o = 1.41(153.8) = +216.9 cm The positive sign indicates that the image is real.