

Name _____

PHYS319 Optics
Pre-lab Microscopes & Telescopes

1. In the experiment on geometric optics you examined the behavior of a convex lens (i.e., a magnifying lens). Based upon what you observed in that experiment does a “magnifying lens” make objects larger or smaller? Explain your answer in the context of what you observed in lab and tabulated in the data table.

2. Explain “accommodation” of the eye. Be sure and include why your parents always seem to keep a pair of reading glasses around. See section 5.7.1 of Hecht.

3. Explain the difference(s) between a Keplerian and Galilean telescopes. Which would be better to use as ‘opera glasses’?

4. Using equations 5.75 and 5.83 of Hecht determine the magnification of the Keplerian telescope in figure 3 of lab write-up.

This is done by measuring f_o and f_i using a ruler and also measuring θ (i.e., α_u) and θ' (i.e., α_α) using a protractor. *The values should be similar if not the same. You will need to extend lines on the diagram to properly measure angles. Copy diagram and turn in it as work. Show all work.*

5. This is a “**Google**” question. Since they both make objects appear larger what is the basic difference between a telescope & a microscope? Be sure and include ULR of the website you used for answer.