

Optics Unit- Exam #3 - Name: \_\_\_\_\_

1a) [5 points] Draw a suitable lens arrangement of a simple refracting telescope. Label all focal lengths and distances.

1b) [5 points] An object is 15 cm from a lens with a focal point of +10 cm. Calculate where the image will form.

1c) [3 points] If the object in 1b is upright and 1 cm tall, what size will the image be?

2a) [2 points] Discuss the concept of dispersion, as it relates to light traveling through glass.

2b) [4 points] What is the smallest object a 6 inch telescope can resolve on the moon?

3a) [2 points] Describe what the focal length of a lens is.

3b) [2 points] What is the difference between a real and virtual image?

3c) [2 points] Discuss the difference between a converging and diverging lens.

3d) [2 points] What does it mean for a lens to have a negative focal length?