

Name \_\_\_\_\_ Instructor name \_\_\_\_\_

**You must show and explain all work neat and organized to receive credit. Please show each step for calculations. YOU MUST TURN IN THIS SHEET to have your assignment graded.**

1. (a) What is meant by the focal length of a lens or a mirror? (b) What is the difference between a real image and a virtual image? (c) What is the definition of magnification? (d) Can the magnification be less than one? (e) If so, what does that mean? (8 pts)

2. (a) What are the principal rays? (b) Sketch principal rays and explain each. (5 pts)

3. (a) Is a concave mirror a diverging or a converging element? (b) Light is observed to converge to a point after being reflected from a plane mirror. Were the incident rays parallel, converging, or diverging before striking the mirror? Sketch a diagram to validate your conclusion. (7 pts)