

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 the difference between a converging (convex) and diverging (concave) lens? (b) What is the sign of the focal length for each type of lens? (c) If o is positive (object is to the left of the lens) and i is positive (image is to the right of the lens), what type of image is formed? (d) If o is positive (object is to the left of the lens) and i is negative (image is to the left of the lens), what type of image is formed? (5 pts)

2. A lens produces an image on a screen twice as large as the object. If the image is located 15.7 cm from the lens. (a) Determine the object distance. (b) Find the focal length of the lens. (c) What type of lens was used in this case? (5 pts)

3. An object is 27.0 cm to the left of the convex lens, which is 52.0 cm from a concave lens, as shown below. The focal lengths of the convex and concave lenses are 14.5 cm and -13.0 cm , respectively. (a) Use the thin lens equation to determine the location of the image made by the convex lens. (b) Treat the image made by the convex lens as the object of the concave lens and determine the location of the final image. Characterize the final image completely. (Reduced or enlarged, real or virtual, inverted or upright). (10 pts)

