Honors Physics Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Convex Lens Lab Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Purpose: Using two lenses (f= 20 cm and 10 cm) correctly measure, calculate, and draw image distance and image width,

Case 1

Case2

Case 3

Procedure: Inset the 20 cm focal lengthe lens. Using the given do measure the di and wi for each Case. Adjust each component of the bench if need be to get the sharpest image. Carefully replace the lens with the 10 cm lenses. Try to clean each lens as you handle it and place it back in its correct box. You will compare these measured results to calculate and graphical result

Measured Data (PASCO optics bench):

Lens f = 20cm

Case 1 Case 2 Case 3

do = 50 cm do = 40 cm do= 30 cm

wo = 4cm wo = 4cm wo = 4cm

di = \_\_\_\_\_cm di=\_\_\_\_\_cm dI = \_\_\_\_\_cm

wi = \_\_\_\_\_cm wi=\_\_\_\_\_cm wi=\_\_\_\_\_cm

Lens f = 10cm

Case 1 Case 2 Case 3

do = 30 cm do = 20 cm do= 15 cm

wo = 4cm wo = 4cm wo = 4cm

di = \_\_\_\_\_cm di=\_\_\_\_\_cm dI = \_\_\_\_\_cm

wi = \_\_\_\_\_cm wi=\_\_\_\_\_cm wi=\_\_\_\_\_cm

Calculate Data (equations):

Lens f = 20cm

Case 1 Case 2 Case 3

do = 50 cm do = 40 cm do= 30 cm

wo = 4cm wo = 4cm wo = 4cm

di = \_\_\_\_\_cm di=\_\_\_\_\_cm dI = \_\_\_\_\_cm

wi = \_\_\_\_\_cm wi=\_\_\_\_\_cm wi=\_\_\_\_\_cm

Lens f = 10cm

Case 1 Case 2 Case 3

do = 30 cm do = 20 cm do= 15 cm

wo = 4cm wo = 4cm wo = 4cm

di = \_\_\_\_\_cm di=\_\_\_\_\_cm dI = \_\_\_\_\_cm

wi = \_\_\_\_\_cm wi=\_\_\_\_\_cm wi=\_\_\_\_\_cm

Graphing Data (optics bench drawn to scale using graph paper):

Lens f = 20cm

Case 1 Case 2 Case 3

do = 50 cm do = 40 cm do= 30 cm

wo = 4cm wo = 4cm wo = 4cm

di = \_\_\_\_\_cm di=\_\_\_\_\_cm dI = \_\_\_\_\_cm

wi = \_\_\_\_\_cm wi=\_\_\_\_\_cm wi=\_\_\_\_\_cm

Lens f = 10cm

Case 1 Case 2 Case 3

do = 30 cm do = 20 cm do= 15 cm

wo = 4cm wo = 4cm wo = 4cm

di = \_\_\_\_\_cm di=\_\_\_\_\_cm dI = \_\_\_\_\_cm

wi = \_\_\_\_\_cm wi=\_\_\_\_\_cm wi=\_\_\_\_\_cm

Results table: Make a table of PASCO, calculated, and Graphing di’s and wi’s

Conclusion: Which method was closer to the calculated values?

 Identify 2 sources of error in each of the graphing and PASCO trials.