

# Protocol 3

Please use this applet:

<https://ricktu288.github.io/ray-optics/>

1. Measure the focal length of the **lens system** consisting of a converging lens (+100 mm) and a diverging lens (-300 mm) using the Bessel method.
2. For a given distance  $d$  between the object and the screen, locate the two positions of the lens system which produce sharp images. Repeat the measurements for 6 different values of  $d$ .
3. Calculate the individual values and the average value of  $f_{\text{ges}}$ . Using the averaged value for  $f_s$  obtained in protocol 2 you can calculate the averaged value of  $f_z$  for the diverging lens.
4. Calculate the standard deviation of  $f_z$  (use error propagation).