

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Partner: \_\_\_\_\_

### Index of Refraction of Plastic

Submit this worksheet along with a second sheet that contains both graphs and all linest results. Your nicely formatted Excel worksheet must be placed in my inbox on \\files (\\files\Inbox\Physics\Pogo\OpticsLab; only one Excel document per group; it should be titled “Lenses-Smith&Jones.xls”), assuming that you and your partner are named Smith and Jones, respectively.

quantity	units	Converging		Diverging	
		value	uncertainty	value	uncertainty
Direct focal length $f$ :	mm				
Pin to pin distance of spherometer ( $L$ )	mm				
Focal length ( $f$ )	mm				
Drawing of your lens, showing the curvature of each surface when orientated as used in your experiment, assuming light moves from left to right.					
Spherometer offset for 1 <sup>st</sup> surface ( $h_1$ ). May be negative.	mm				
Spherometer offset for 2 <sup>nd</sup> surface ( $h_2$ ). May be negative.	mm				
Radius of 1 <sup>st</sup> surface ( $R_1$ ). May be negative.	mm				
Radius of 2 <sup>nd</sup> surface ( $R_2$ ). May be negative.	mm				
index of refraction ( $n$ )	-				

In the space below, briefly comment on your results. Do your measurements of the index of refraction agree with the typical values for polycarbonate (plastic)? If not, why not? Note that if either of your  $n$  values is negative, smaller than 1.0, or larger than 2.0, then you made many serious errors and you should redo the experiment, the analysis, or both.