

# Experiment 20

## DATA SHEET

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

Table: \_\_\_\_\_ Section: \_\_\_\_\_

PART (STEP)	EYE TYPE	EYE CONFIGURATION	CORRECTIVE LENS	OBSERVATIONS/COMMENTS
A (1-3)	Normal Eye (Relaxed)	Retina:		
		Lens:		
A-4	Normal Eye (Compressed)	Retina:		
		Lens:		
C (1-2)	Hyperopic Eye	Retina:		
		Lens:		
D-1	Myopic Eye	Retina:		
		Lens:		
E (1-2)	Astigmatic Eye	Retina:		
		Lens:		
F-1	No Crystalline Lens	Retina:		
		Lens:		
F-2	No Crystalline Lens	Retina:		
		Lens:		
F-3	No Crystalline Lens	Retina:		
		Lens:		

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### EYE CHART

What is the lowest line you could read with each eye?

Left Eye:     20/ \_\_\_\_\_

Right Eye:    20/ \_\_\_\_\_

Both Eyes:   20/ \_\_\_\_\_

### ASTIGMATISM

Along which set of lines, if any, are you astigmatic?

(I-VII? X-VI? none?)

## QUESTIONS

- 1) What is a positive lens?
  
- 2) The number of a lens represents the power or \_\_\_\_\_.
  
- 3) In reference to the character of the image in Part A, why don't we perceive objects on which our eyes focus as being inverted?
  
- 4) What happens to the portion of the image that falls on the blind spot? Under normal circumstances are we aware of the blind spots in our own eyes?
  
- 5) What two things happened to the image when the diaphragm was inserted in Part B? Why?
  
- 6) What is a negative lens?

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- 7) Did you use a positive or negative lens to correct for hyperopia? How did it correct the system? Make note of its effect on the focal length of the system.
  
- 8) Did you use a positive or negative lens to correct for myopia? How did it correct the system?
  
- 9) Make a careful drawing depicting the curvature of the lenses as seen from the edge. Qualitatively describe how the +1.75 lens corrects the defect caused by the -5.50 cylindrical lens.  
  
*Note:* The corrective lens need not be curved as much as the lens mimicking the defect because light curves more travelling from air to glass, than water to glass. The effect is that each lens, when in its proper place on the model, is of equal strength, one positive and the other negative along one axis.
  
- 10) Discuss briefly the kind of glasses needed to correct vision for an eye with no crystalline lens. What are the limitations, even with corrective glasses?