Name _____   Date _____
AP Physics   Lab Activity #22 (50 pts)
Period _____   Mrs. Nadworny

Partners: Due Date _____

Curved Mirrors

Purpose

To investigate the properties of curved mirrors.

Materials

NO Lab Write-Up Required
must be neatly written in pencil

- curved mirror   • index card   • optical bench (meterstick, legs, screen holder)
- candle   • scrap paper

1. Describe a method for finding the focal length of the concave mirror.   (3 pts)

Reflect light from a distant object (object outside window) onto an index card. Move mirror back and forth until image comes into focus. Measure distance between card & mirror.

2. Fill in the chart below with your predictions for the properties of the image for each case listed.
                                                                                                                             (15 pts)

Object Distance	Image Distance (closer/equal/farther)	Size (larger/smaller/same)	Type (real/virtual)	Orientation (upright/inverted)
Beyond C				
At C				
Between C & F				
At F				
Between F & mirror				

3. Predict what will happen to the image if you block half of the mirror with a card.   (2 pts)

4. Predict the location and properties of the image when the candle is placed in front of the convex mirror.   (4 pts)

   a) location

   b) properties

5. Find the focal length and the radius of curvature for your concave mirror.   (4 pts)

   Focal Length = _____   Radius of Curvature = _____

6. Set up the optical bench as demonstrated by your teacher. Be careful to keep long hair and loose clothing away from the open flame of the candle and to **keep a piece of paper below it to catch any dripping wax.**

7. Check your predictions by placing the candle at each of the locations listed and finding the image. Complete the chart with your results.   (10 pts)

Object Distance	Image Distance (closer/equal/farther)	Size (larger/smaller/same)	Type (real/virtual)	Orientation (upright/inverted)
Beyond C				
At C				
Between C & F				
At F				
Between F & mirror				

8. Check your prediction in step 3 and describe the results.   (2 pts)

9. Check your prediction in step 4 and describe the results.   (2 pts)

Conclusion

1. Compare the images seen in concave and convex mirrors.   (3 pts)

2. Describe the general trend in image properties and location as the object starts beyond C and gets closer to the concave mirror.   (3 pts)

(2)
neatness