

Set 2: Mirrors: Ray Diagrams and Mirror Calculations

Directions: For each problem, find the focal length; be sure to use (+) or (–), as appropriate. Then use a ruler and straight-edge to draw a ray diagram to find the location of each image. Use the ruler to **measure** the image distance q_{ray} and image height h'_{ray} . Next, **calculate** the image distance q_{eq} and image height h'_{eq} using equations discussed in class. Also, calculate the magnification M using q_{eq} . Finally, calculate the percent error of your ray diagram (rounded to the nearest 0.1%) using the equation:

$$\% \text{ error} = \left| \frac{q_{eq} - q_{ray}}{q_{eq}} \right| \times 100$$

7.



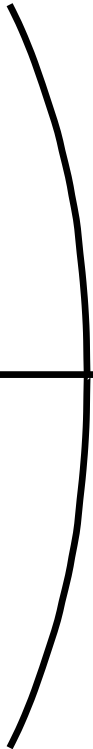
Value	Prob. 7
R	12.60 cm
f	
p	2.40 cm
h	1.50 cm
q_{ray}	
h'_{ray}	
q_{eq}	
h'_{eq}	
M	
$\% \text{ error}$	

8.



Value	Prob. 8	Prob. 9
R	10.60 cm	13.80 cm
f		
p	5.30 cm	11.30 cm
h	1.40 cm	2.20 cm
q_{ray}		
h'_{ray}		
q_{eq}		
h'_{eq}		
M		
% error		

9.



Value	Prob. 10	Prob. 11
R	15.40 cm	18.20 cm
f		
p	15.40 cm	20.90 cm
h	2.70 cm	1.90 cm
q_{ray}		
h'_{ray}		
q_{eq}		
h'_{eq}		
M		
% error		

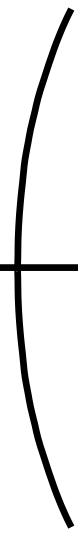
10.



11.



12.



Value	Prob. 12	Prob. 13
R	-9.60 cm	-10.40 cm
f		
p	8.10 cm	7.00 cm
h	2.90 cm	3.40 cm
q_{ray}		
h'_{ray}		
q_{eq}		
h'_{eq}		
M		
% error		

13.

