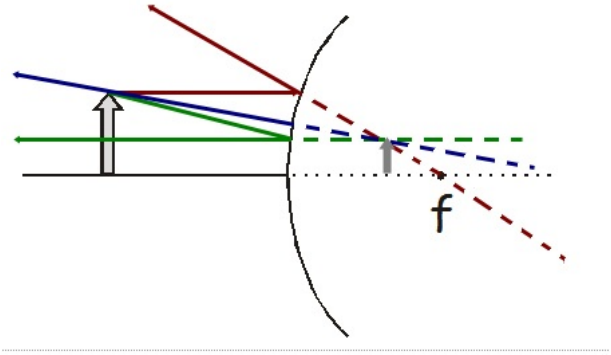
Optics

Physics – Mr. Hall

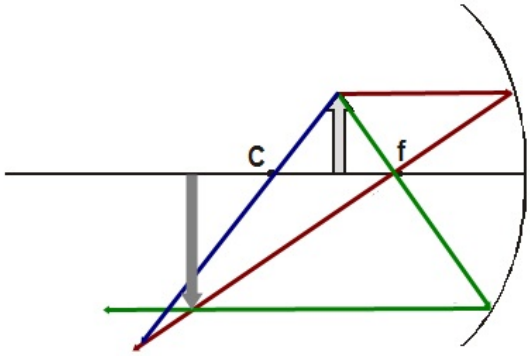
WORKSHEET #2

Name: _____

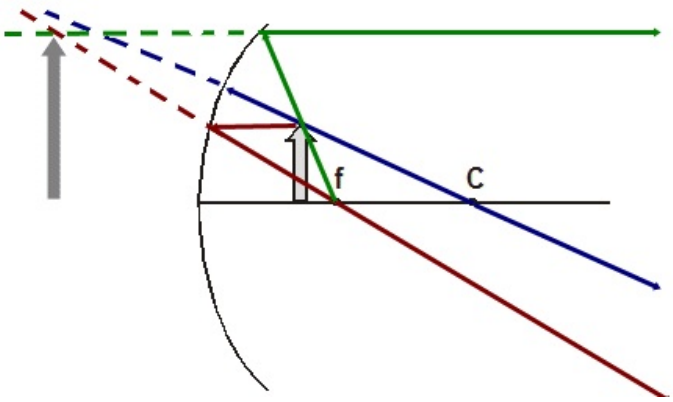
1. Construct the image for this spherical convex mirror.



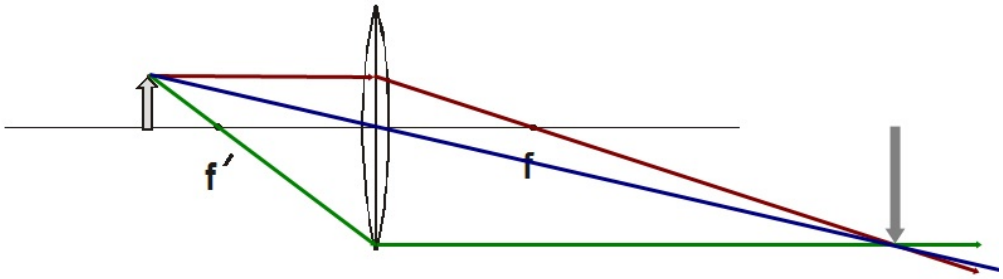
2. Construct the image on the drawing below via ray tracing.



3. Construct the image on the drawing below via ray tracing.



4. Construct the image for an object placed as shown below.



5. A double convex thin lens has a focal length of 50.0 cm. A 2.70 cm tall object is placed 18.0 cm from the lens, find (a) the image distance, (b) the magnification, (c) the image height.

a. $d_o^{-1} + d_i^{-1} = f^{-1}$

$(18\ cm)^{-1} + d_i^{-1} = (50\ cm)^{-1}$

$d_i = ((50\ cm)^{-1} - (18\ cm)^{-1}) = -28.125\ cm =$ **- 28.1 cm**

b. $M = -d_i/d_o = -(-28.125\ cm / 18.0\ cm) = 1.5625 =$ **1.56**

c. $h_i = M \cdot h_o = 1.5625 \cdot 2.70\ cm = 4.21875\ cm =$ **4.22 cm**