1. What travels faster: radio waves or visible light?

2. You know the speed of light (see the notes). The bottom of the FM radio band has a frequency of 88 MHz. Find its wavelength. (Remember that Mega = x 10^6)

3. What is the frequency of yellow-green light that has a 560 nm wavelength?

4. If you double the distance from the light source the amount of light decrease by what amount?

5. What is a real image?

6. Which devices can create real images and why?

7. Positive or Negative.

    ____ f for concave mirror
    ____ f for concave lens
    ____ f for convex lens
    ____ f for convex mirror
    ____ p for convex mirror
    ____ p for convex lens
    ____ q for divergent devices
    ____ if the image is inside a mirror
    ____ p for divergent devices

    ____ if the image is on the same side of a lens as the object.
    ____ if the image is on the same side of the mirror as the object.
    ____ f for divergent devices
    ____ M for a virtual image.
    ____ h for a real image
    ____ f for convergent devices
    ____ q for convergent devices

    ____ if the image is on the opposite side of the lens from the object.
    ____ q for a real image
    ____ M for divergent devices
    ____ q for a virtual image
    ____ M for a real image
    ____ h' if a real image
    ____ h' for divergent devices
    ____ q for convergent devices

8. A 6 cm tall pencil is 4 cm in front of a concave mirror that has a 2 cm focal length.
    A. Write your variable list.

    B. The distance to the image.

    E. Find the magnification of the mirror.

    F. Find the height of the image.

    G. Is your image real or imaginary?
    H. Is your object real or imaginary?

9. A 5 cm object is 8 cm in front of a lens. The image appears inverted and 10 cm on the opposite side of the lens from the object.
    A) What kind of lens is it?
    B) Find the focal length.

    C) Find the magnification of the lens.

    D) Find the height of the image.

    E) Is the image real or virtual?
10. What is the radius of curvature?
11. What is the focal point?
12. (This will help you A LOT next week.) In the lab, how could you find the focal length of a lens? (*I can think of three ways, figure out two of them. If you can get the third, it will help you a lot, conceptually.*)

13. When using the RGB color model,
    A. What do the letters RGB stand for?
    B. Since RGB are the ONLY colors you have available to you, what would you use to make red?
    C. What color is always the background for RGB?
    D. How would you make white?   E. How would you make yellow?
    F. How would you make black?   G. How would you make magenta?
14. If you are using the CMYK model for making color:
    A. What do the letters CMYK stand for?
    B. What color is the background?
    C. How would you make Red?
    D. How would you make Cyan?
    E. What are the two ways to make black?
    F. What is the most economical way to make black?
    G. How would you make Blue?

15. If you look thru a blue piece of plastic at a red object, what color does it look like?
16. More importantly, why?

17. If the index of refraction of glass is 1.52, find the speed of light in glass.

18. Using Snell's law and a protractor, draw
    and label the path of this light ray as it
    passes into and then thru the
    pane of glass.

    Air

    65°

    Glass
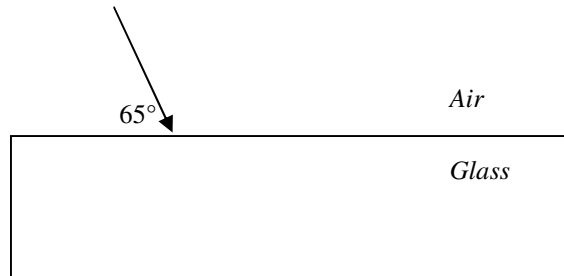
19. Using my rules for ray diagrams and a ruler,
    find where the image for this lens is.
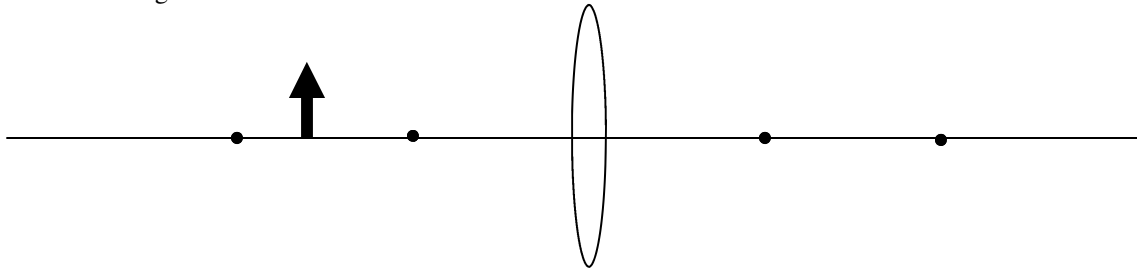
20. Find the image for this mirror.