A-Day Due Mon., Feb 23
B-Day: Due Tues., Feb 24

2009 PreAP Light and Optics 2

For this homework you will need to use the book, your notes, and Internet applets that are linked up on the website under the "Light and Optics" links.

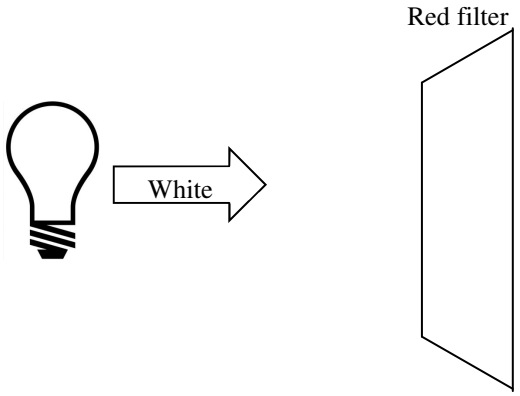
1. If the moon is approximately 384,000,000 m from the earth, how long did it take the radio signals from the Apollo moon lander to reach the earth?

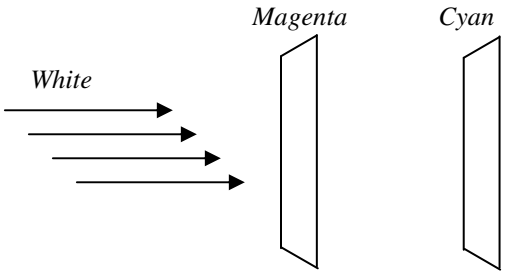
2. Do Q6 on page 550.

Help with colors at second color link.

3. Do our eyes see light or paints?

4. The diagram at the right shows a light bulb giving off white light toward a red filter.
   A. Draw smaller arrows to show what colors make up white light. Have them point toward the filter and label them.
   B. Show which light or lights get thru the filter.
   C. So, what color or colors passes thru a red filter?
   D. What color or colors are absorbed by a red filter?



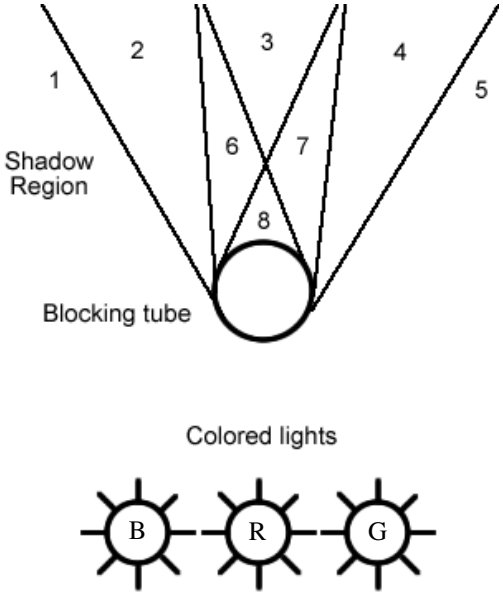


5. Use the diagram at the left to answer the following.
   A. What color or colors get thru the magenta filter?
   B. What color or colors get thru the cyan filter?

6. What color is absorbed by green?
7. What color is absorbed by yellow?
8. So, if using CMYK,
   A. To make blue you would have to absorb:
   B. What color or colors will make blue?

9. Looking at the red exit sign in class. What is seen if we put the following filters in front of the sign?
   A. Blue:
   B. Yellow:
   C. Red:

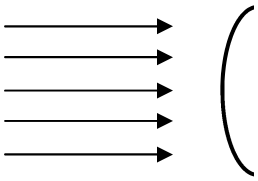
10. The graphic at the left depicts what we did with the three colored lights. To help you with the following questions you might want to label the diagram as you go.
    A. _____In which region is green blocked?
    B. _____In which region is blue blocked?
    C. _____In which region is red blocked?
    D. _____Which region is magenta?
    E. _____Which region is cyan?
    F. _____Which region is yellow?
    G. _____Which region is white?
    H. _____Which region is black?
    I. _____Which region is blue?



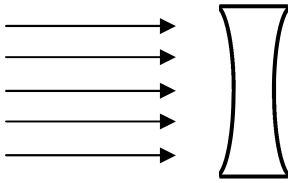
Link: "Pictures of Lenses and Mirrors". OR, you can come early to class and use the lab equipment, again.

11. Draw what will happen to the light rays for the different devices. For each device also give this information in the appropriate blanks: A: Concave or Convex. B. Convergent or Divergent. C. Which side is real. D. Real or Virtual focal point. Put N/A, if it is neither concave or convex or if it has no focal point, etc.

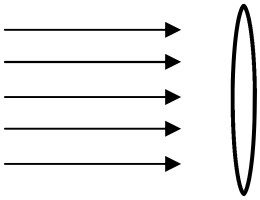
Mirror: A. _____ B. _____
C. _____ D_____ (label it).



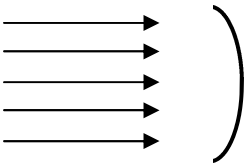
Lens: A. _____ B. _____
C. _____ D_____ (label it).



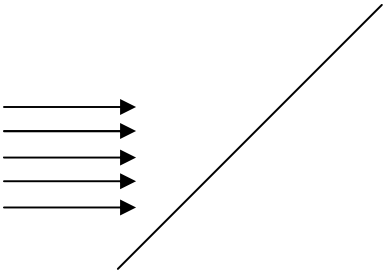
Lens: A. _____ B. _____
C. _____ D_____ (label it).



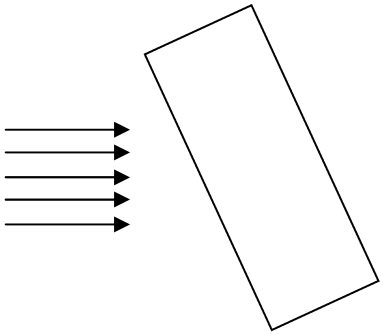
Mirror: A. _____ B. _____
C. _____ D_____ (label it).



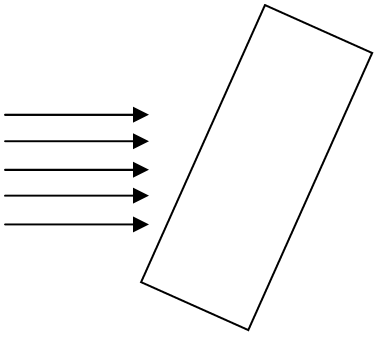
Mirror: A. _____ B. _____
C. _____ D_____ (label it).



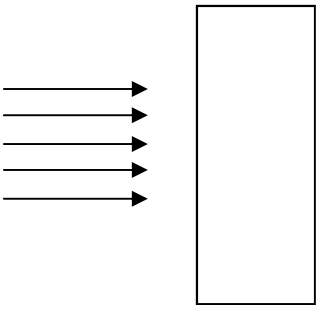
Acrylic: A. _____ B. _____
C. _____ D_____ (label it).



Acrylic: A. _____ B. _____
C. _____ D_____ (label it).



Acrylic: A. _____ B. _____
C. _____ D_____ (label it).



12. Convergent or Divergent?
    A. _____A convex lens?
    B. _____A convex mirror?
    C. _____A concave mirror?
    D. _____A plane mirror?
    E. _____A concave lens?

    For us (at least now) the light will always come from the left. The real side of an device depends on which way light "really" goes. You cannot "really" be inside a mirror, but your image seems to be there. So, the inside of a mirror is "virtual". There are study helps on this.
13. Which side of a lens is real?
14. Which side of a mirror is real?
15. Real or virtual focal point?
    A. _____A convex lens?
    B. _____A convex mirror?
    C. _____A concave mirror?
    D. _____A plane mirror?
    E. _____A concave lens?

16. From book: p.541—How are spherical and parabolic mirrors different? Why is one superior to the other?

TAKS:

17. Parts of organisms that have a similar function but do not share similar structural characteristics are called

    A. Homologous structures
    B. Fossil age
    C. Genetic traits
    D. Populations size

18. Which of the following pairs of processes are involved in the carbon-oxygen cycle?

    A. Runoff and precipitation
    B. Precipitation and condensation
    C. Photosynthesis and respiration
    D. Nitrogen-fixing and photosynthesis

19. Robins are birds that feed mostly on worms they take from soil. A new species of worm-eating bird is introduced to an ecosystem where many robins live. Which relationship will exist between the introduced species and the robins?

    A. Competition
    B. Predation
    C. Parasitism
    D. Mutualism

20. Cattle feed by grazing on grasses in a pasture. Based on their food source, the cattle are an example of

    A. Producers
    B. Omnivores
    C. Herbivores
    D. Carnivores