PreAP: Due Mon., Mar 5 (Assigned Wed., Mar 1)
Reg. Due Tues., Mar 6 (Assigned Thur., Mar 2)

Light Review

1. Nature of light.
   A. What is light? (2 parts, with proof.)

   B. What do we call a particle of light?
   C. How is light created?

2. Light r_____ when it crosses a transparent boundary.
   A. If a light crosses perpendicular to a transparent boundary, which way will it bend?
   B. Why?

   C. How do you decide which direction light will bend at a slower boundary?

   D. How do you decide which direction light will bend at a faster boundary?

3. Light r_____ when it hits a hard boundary.
4. Which side of a lens is real?
5. Why?

6. Which side of a mirror is real?
7. Why?

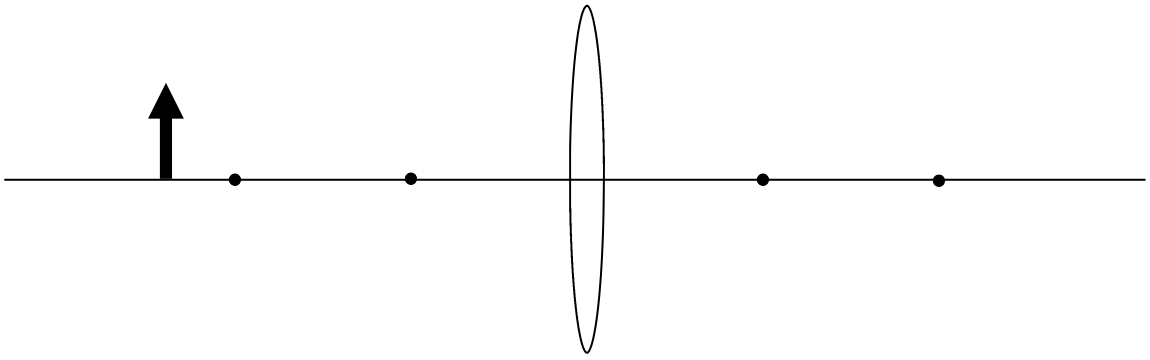
8. Convergent or Divergent: _____ Concave mirror; _____ Convex lens; _____ Convex mirror; _____ Concave lens?

9. Do convergent devices have a real or virtual focal point?
10. Why?

11. Which devices ALWAYS reduce: divergent or convergent?
12. Are real (R) or virtual (v).

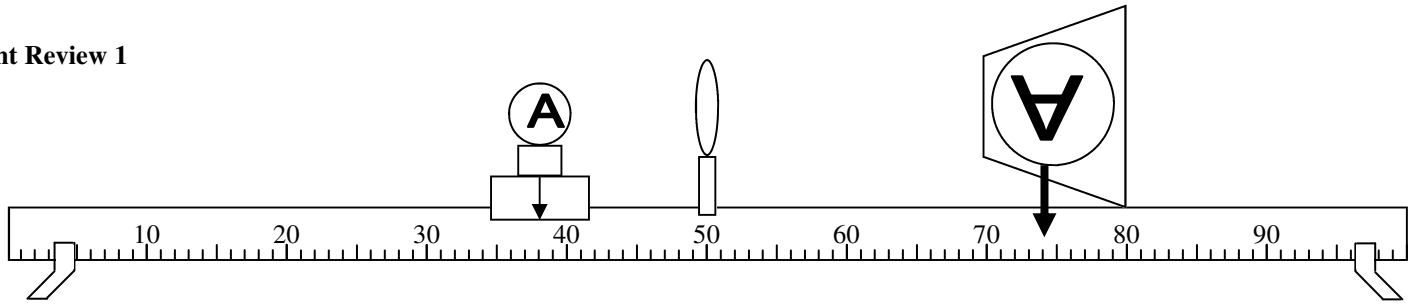
A. ____ The right side of a lens?
B. ____ The distance to the object?
C. ____ The focal length of a concave mirror?
D. ____ The image before the focal length?
E. ____ The focal length of a convex lens?
F. ____ The left side of a mirror?
G. ____ Image distance from a convex mirror?
H. ____ Image distance from a concave mirror (usually)
I. ____ The image appears to the left of a mirror.
J. ____ The focal length of a convex mirror?
K. ____ Image distance from a concave lens?
L. ____ The image from a convex mirror?
M. ____ The left side of a lens?
N. ____ The focal length of a concave lens?
O. ____ The right side of a mirror?
P. ____ Image distance from a convex lens (usually)?
Q. ____ Image is inverted.
R. ____ You can project the image on a screen.

13. Find the image with ray diagrams.



14. Is the above image real or virtual?
15. Is the image magnified or reduced?
16. Label: f, C, p, q, h, and h'.

Light Review 1



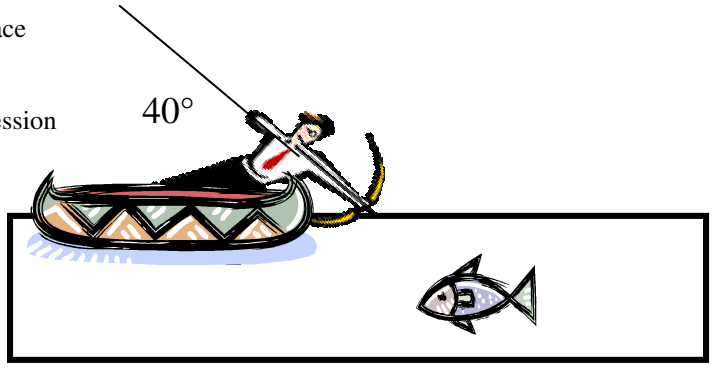
17. Is the above image inside the f, between f and C, or outside C?
18. How do you know?
19. Find the focal length of the above lens.

20. Find the magnification of the setup.

21. Find the critical angle of light passing from a diamond to ice (*that's an expensive ice cube!).*

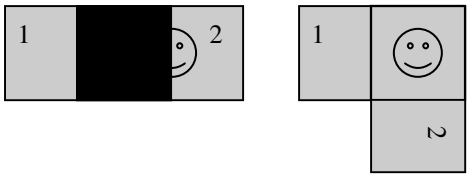
22. All angles for reflection and refraction are taken from the surface or from the normal?

23. Once again the well-dressed man is trying to take out his aggression from work on a poor, helpless fish (*sniff*!). Pointing at where the fish seems to be, he takes aim at 40° to the horizontal.
    A) Will there be fishsticks tonight?
    B) Draw where the fish is really.
    C) At what angle is the fish under the water?



24. Two substances: A (n = 1.56); B (n = 2.3).
    A) Which one is denser?
    B) In which one will light travel faster?
    C) In which case would there be no critical angle (from which one to which one)?

25. When the two polarizers are put together, one set up allows light through and one doesn't. Why?



26. How do fiber optics allow light to bend in plastic tubes?

Be sure to read the following notes: Light; Color; Refraction; Ray Diagrams; Variables and Conventions.

You also should look over your variable chart and equation chart, so that you know which variables to use for what and what equations to use.