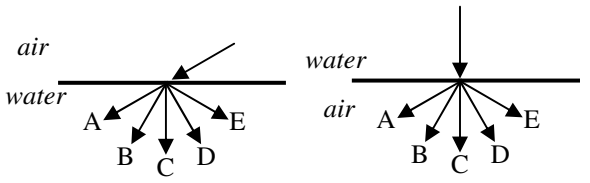
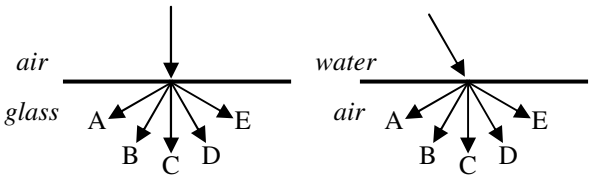
A-day. Due Tues., Feb 27 (Assigned Fri., Feb 23)
B-day: Due Wed., Feb 28 (Assigned Mon., Feb 26)

Light 6

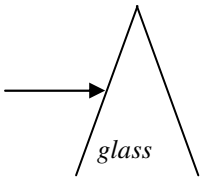
1. Why does light bend when it passes from one medium to another? (Be specific.)



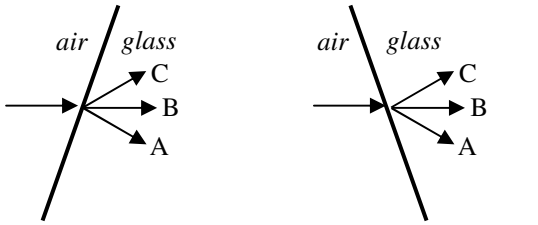
2. What is the "normal"?



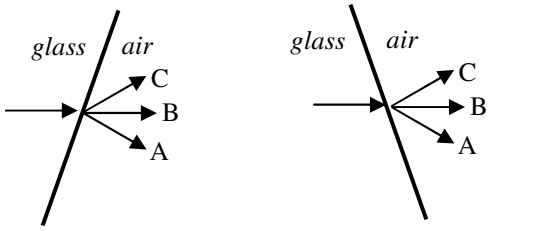
3. Using the graphics at the right, chose the correct path that light will follow.



4. Draw the path of light as it travels thru the piece of glass at the left.



5. Virtual or Real?
   A) _____Focal length of a convergent device?
   B) _____An upright image?
   C) _____If the image is on the right side of a mirror?
   D) _____Focal length for a concave mirror?
   E) _____Image is inverted.
   F) _____Focal length of a concave lens?
   G) _____h' if the image is on the left side of a lens?
   H) _____h is the image is virtual?

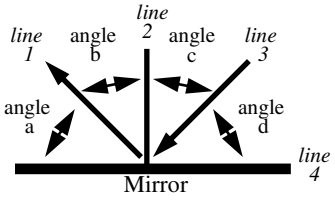


6. Positive or Negative?
   A) ____Focal length of a divergent device?
   B) ____q for an inverted image?
   C) ____p for a divergent device?
   D) ____h' if the object is upright?
   E) ____ h if the image is inverted?
   F) ____focal length of a concave lens?

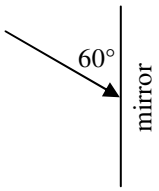
7. If you did the lab right, you should know about reflection. How do the incoming (incident ray) and outgoing ray (reflected ray) compare (which is smaller or are they equal)?

8. Do you measure angles from the surface of the material or from the normal?

9. Which is the angle of incidence:_____
   Which is the angle of reflection:_____
   Which is the normal: _____
   Which is the incident ray: _____
   Which is the reflected ray: _____



10. Give the angle that light will reflect off of the mirror at the right.



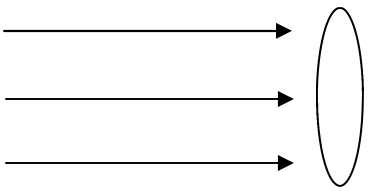
(*From the lens applet, again.*)

11. Which kind of mirror can produce a magnified real image?
12. Which kind of lens can produce a reduced inverted image?
13. For a convex lens, when the object is between the radius of curvature and the focal point does it magnify or reduce?
14. For a concave lens, where is the object to make a real, magnified image?

15. A person stands in front of a ***flat mirror*** looking at a chair placed 2 meters in front of the mirror.
    A) What is the focal length of the mirror?
    B) Does the image appear inside or in front of the mirror?
    C) Is the image real or virtual?
    D) Could you project this image onto a screen?
    E) Where does the image of the chair appear (include a number).

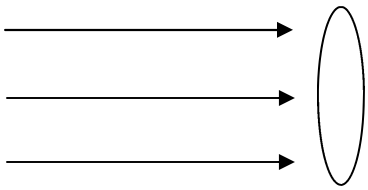
Light 6

Mirror



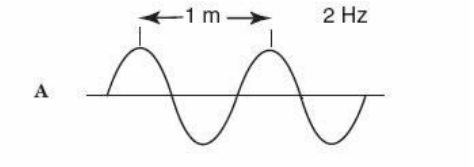
16. What kind of mirror is shown at the right?
17. The three incident light rays will do what when they strike the mirror?
18. Draw where they will go.
19. Draw and label where the focal point is.
20. Is it a real or virtual focal point?
21. Will it create a real or virtual image?
22. Is it divergent or convergent?
23. Will it magnify or reduce?

Lens

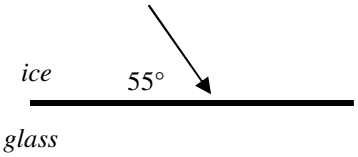


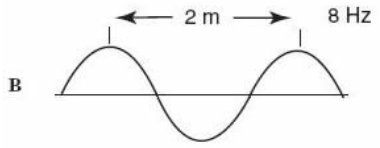
24. Draw where the incident rays will do for the lens.
25. Show and label where the focal point is.
26. Is it a real or virtual focal point?
27. Will it create a real or virtual image?
28. Is it divergent or convergent?

29. Using the pictures at the right, which wave is moving the fastest?

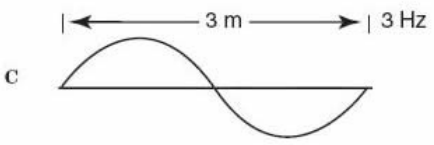


30. Remembering where you take angles from, find the angle that the light will refract into the glass.





31. How long will it take wave C to undergo 20 cycles?



BONUS: (From "Diffraction" Notes)

32. If I am using a diffraction gradient with 500 lines per mm and the first maximum shows up at an angle of 15°, what wavelength of light are we using?