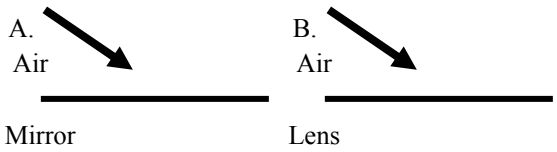
PreAP: Due Fri., Mar 31 (Assigned Wed., Mar 29)
Reg. Due Mon., April 1 (Assigned Thurs., Mar 31)

# Light 6

1. Does light pass thru or reflect from mirrors?
2. Does light pass thru or reflect from lenses?
3. If the image seems to be on the opposite side of the mirror from the object is it real or virtual?
4. If the image seems to be on the same side of the mirror as the object is it real or virtual?
5. If the image seems to be on the same side of the lens as the object is it real or virtual?
6. If the image seems to be on the opposite side of the lens from the object is it real or virtual?
7. + or –?

A. ____ The distance to the object?
B. ____ The focal length of a concave mirror?
C. ____ Image distance from a convex 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 concave mirror (usually)
H. ____ The right side of a lens?
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 left side of a lens?
M. ____ The focal length of a concave lens?
N. ____ The right side of a mirror?
O. ____ Image distance from a convex lens (usually)?
P. ____ Image is inverted.

8. Show what will happen for graphics A and B on the right (the lens is made from glass).




9. In graphics A the light will _____.
10. In graphics B the light will _____.

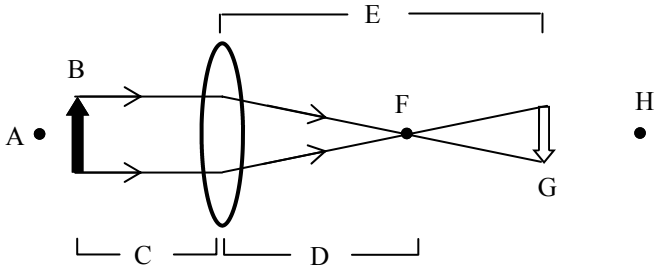
*Hint: I realize it would take time, but if you don't know the answers to the following (from the lab) you could make up numbers and use the lens equations to answer.*

11. Real or Virtual Image?

A. ____ The image is placed inside the focal length.
B. ____ The object is placed at the focal length.
C. ____ The object is placed between the focal length and the radius of curvature.
D. ____ The object is placed at the radius of curvature.
E. ____ The object is place beyond the radius of curvature.

12. What kind of device is shown (including the shape):
13. What do the letters stand for? (One is repeated.)

A = _____
B = _____
C = _____
D = _____
F = _____
G = _____
H = _____




14. A 5 cm pencil is 6 cm away from a convex lens with a 4 cm focal length.
A) Find the image distance.

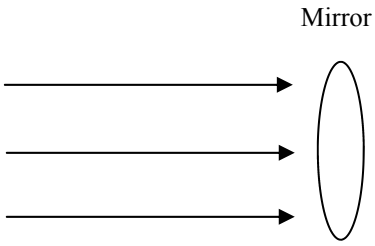
B) Find the magnification.

C) Find the height of the image.

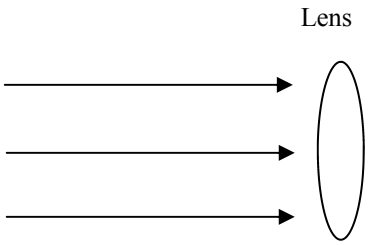
D) Is the image real or virtual?
E) Is the image on the right or left of the lens?
F) Could you project the image onto a screen?

**Light 6**

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).
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?




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. A light ray comes into water at 35 degrees, at what angle will it be going after it enters the water (due to _____)?

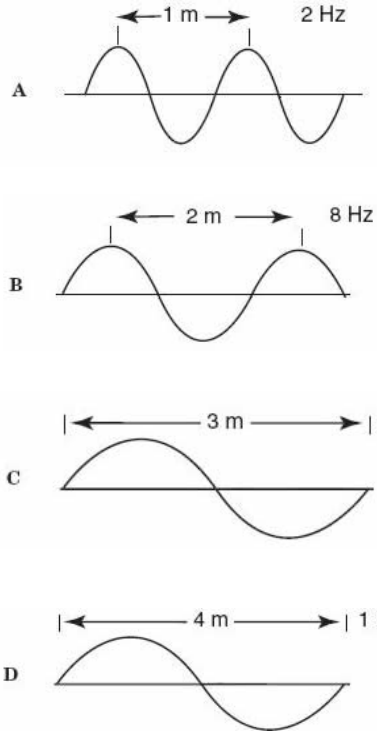
30. Glass has an index of refraction of 1.52.
    A) How fast does light travel in glass?

    B) Find the critical angle for glass.

    C) If I shine light from the side of a piece of glass and it strikes the to part of the glass at 52° what will happen?

31. An unidentified element has many of the same physical and chemical properties as magnesium and strontium but has a lower atomic mass than either of these elements. What element is it?

32. Which of the waves at the right is moving the fastest?




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

HONORS ONLY

34. 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?