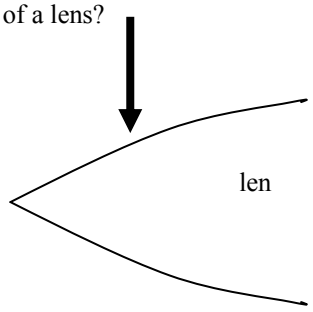
Review for Final Spring 2006

1. Convergent or Divergent: _____ Concave mirror; _____ Convex lens; _____ Convex mirror; _____ Concave lens?
2. Do convergent devices have a real or virtual focal point?
3. Are the following + or –?

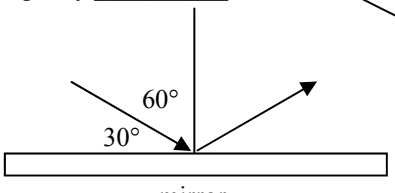
A. ____ The distance to the object?
B. ____ The focal length of a concave mirror?
C. ____ Image distance from a convex mirror?
D. ____ q if the image appears to the left of a mirror.
E. ____ The focal length of a convex mirror?
F. ____ Image distance from a concave lens?
G. ____ The left side of a lens?
H. ____ The focal length of a concave lens?
I. ____ The right side of a mirror?
J. ____ Image distance from a convex lens (usually)?
K. ____ q if the image is inverted.
L. ____ h' if the image is inverted.
M. ____ The focal length of a convex lens?
N. ____ The left side of a mirror?
O. ____ Image distance from a concave mirror (usually)
P. ____ The right side of a lens?

4. What do the letters stand for on the diagram? (*One is repeated*)
5. Show what will happen for the lens at the right as it enters AND EXITS the lens (the lens is made from glass).

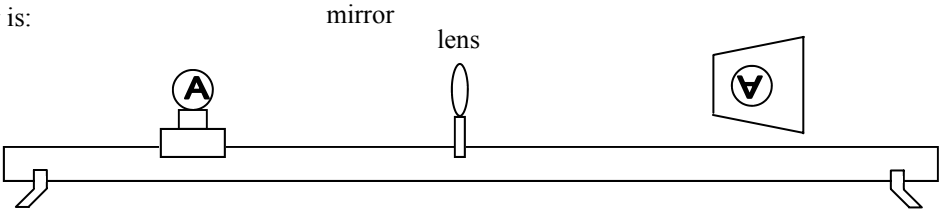


6. Lenses change light by _____; Mirrors change light by _____.
7. For a real image: (+ or –)

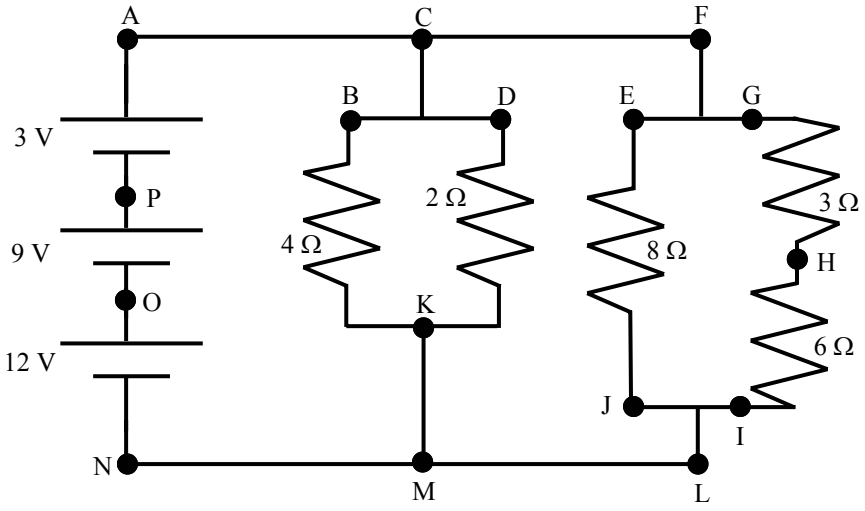
A) h is ___ C) p is ___ E) M is ___.
B) h' is ___ D) q is ___



8. The angle of reflection for the mirror is:



9. Label p, q, h, and h' on this diagram.
10. Is it a real or virtual image? How do you know?



11. The voltage from N to P is:
12. The voltage from A to G is:
13. The voltage at A is:
14. The voltage at K is:
15. The voltage from D to K:
16. The voltage from G to I:
17. How many branches are there? It will help if you mark the following on the diagram as you go.
18. Find the total resistance of branch 4.
19. Find the current through each branch.
20. Find the current through K.
21. Find the current through L
22. Find the current through N.
23. Find the current through A.
24. The total current of the circuit is:
25. The total voltage is:
26. The total resistance is?
27. The total power is?
28. Which resistor is brighter the 4 Ω, 2 Ω, or 8 Ω?
29. Why?
30. Which is brighter the 3 Ω or 6 Ω resistor?
31. Why?
32. Find the voltage at H.

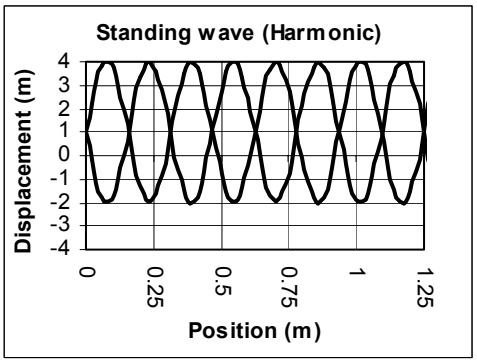
Final Review

33. Use the standing wave at the right to answer the following.
    A. Find the standing wave's wavelength.

    B. If this was a sound wave, find its frequency.

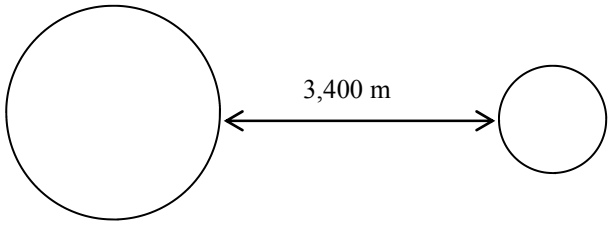
    C. Can we hear it's frequency?

    D. Amplitude = _____ E. Period = _____
    F. Where will it come to rest?
    I. Find the fundamental frequency for this space.



    J. Find the wavelength of the fundamental for the space on graph 1.

34. Find the force of gravity on the two objects at the right.



Mass: 7,500 kg
Diameter: 2,200 m

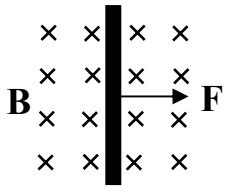
Mass: 4,500 kg
Diameter: 1,000 m

35. Where does the earth's magnetic field come from?

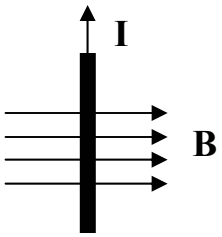
36. How does the earth's magnetic field protect us?

37. How does a motor work?

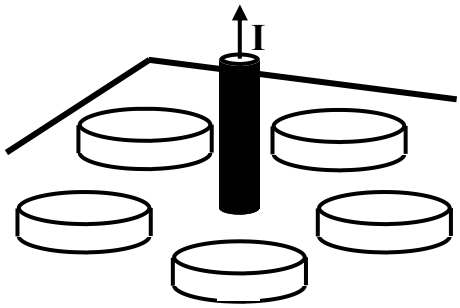
A) Find the direction of the current in the wire.



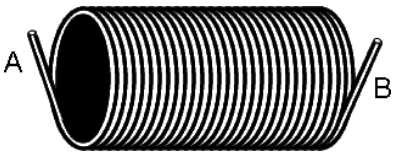
B) Find the direction of the force on the wire.



C) Draw the compasses around the current carrying wire.



D) If N is to the right, which side does the electricity come out?



E) If electricity is attached to letter B, will left or right be south?