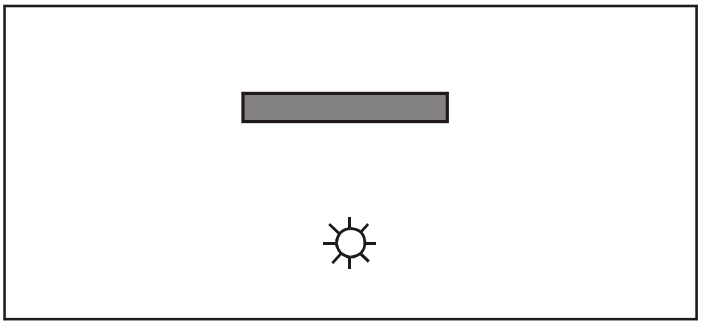
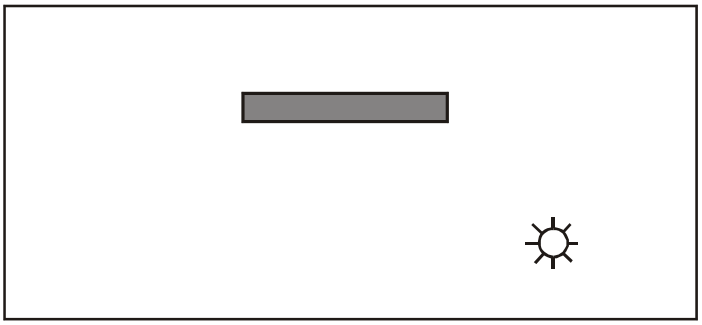
AP 2 Optics: NOTES

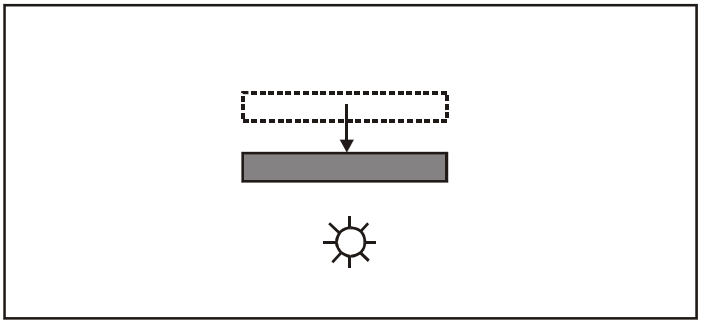
1. All of the diagrams in this section show light bulbs and cards seen from above. For each arrangement, draw a number of rays from the source and shade in the shadow cast by the card onto the tabletop.



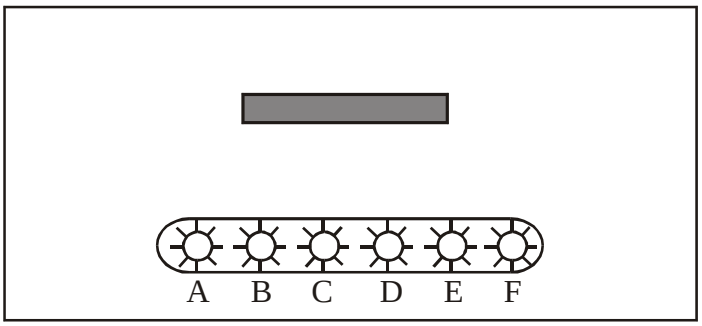
2. Draw a number of rays from the source and shade in the shadow region that results when the light bulb is moved to the right. How does the shadow move when the source is moved to the side?



3. Draw a number of rays from the source and shade in the shadow region that results when the card is moved closer to the light bulb. What happens to the size of the shadow? What happens to the number of light rays striking the card?



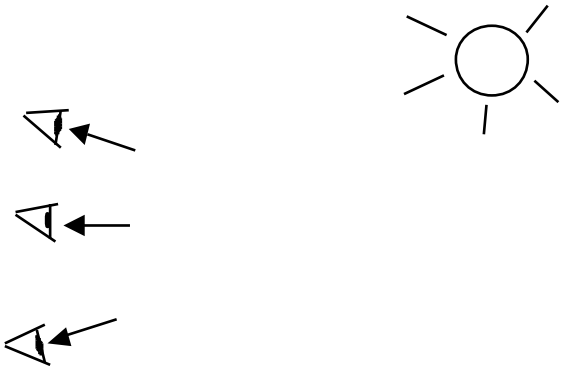
4. An extended light source, like a fluorescent bulb, can be thought of as a series of point sources. Draw a number of rays from each source and determine the appearance of the shadow region.



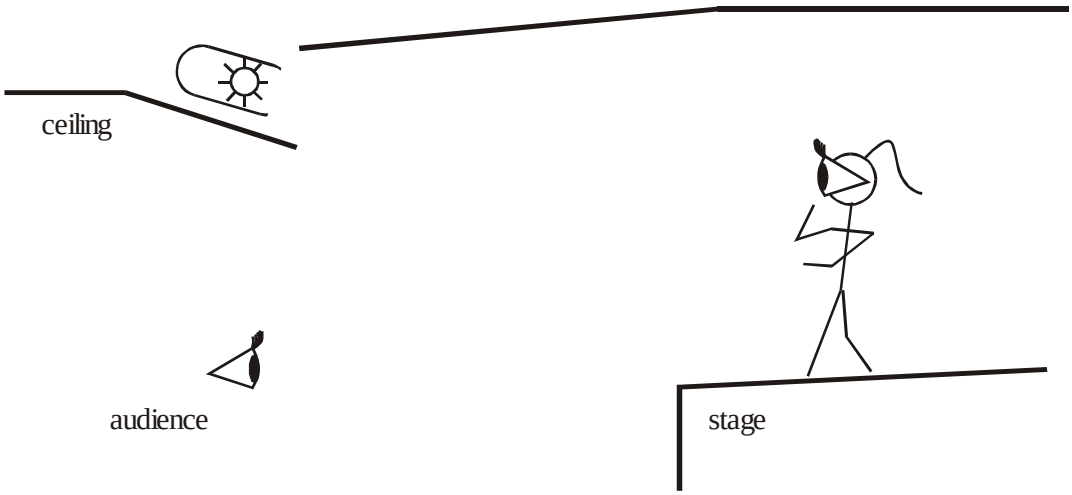
4. The three eye locations pictured can see a bug.

a. Use the given light rays to locate the position of the bug.

b. Add several light rays from the source that would be needed in order to see the bug.



5. At a concert, a performer is lit with spotlights in the ceiling.



a. Draw light rays to indicate how an audience member can see all of the performer's body.

b. What can you conclude about the number of rays of light coming from the source?

c. Can the audience member see the light source? Why or why not?

d. Can the performer on the stage see the light source? Why or why not?

e. Unless there is fog in the air, it is not possible to see the beam of light from the source to the performer. Explain why.