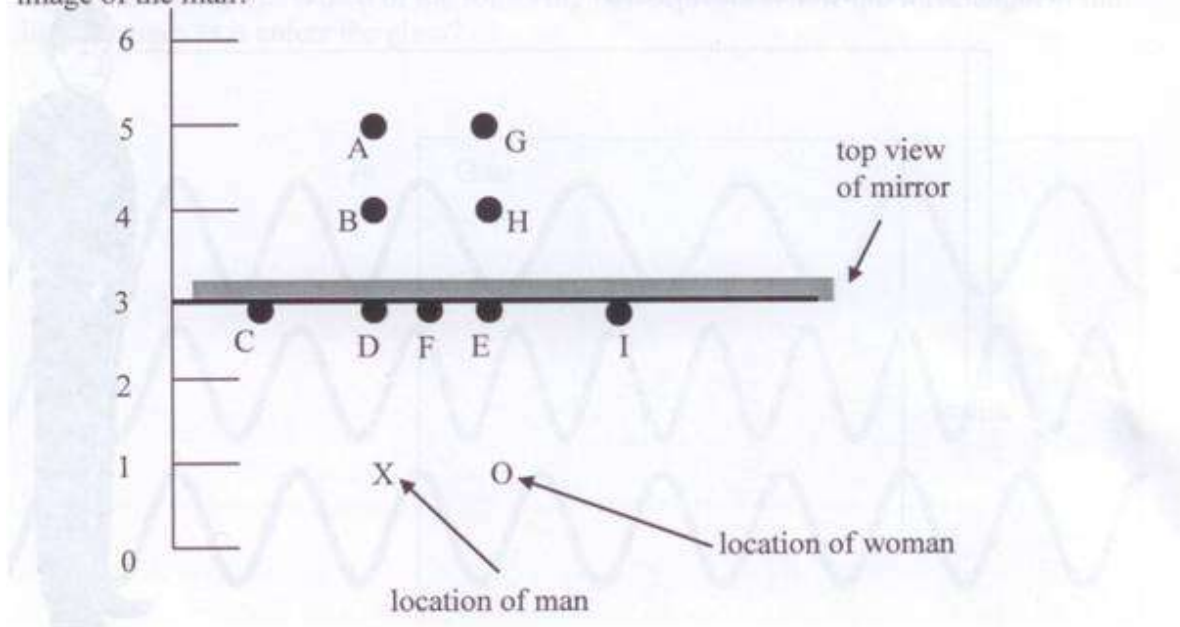


**Exam 2 Review**  
**Phys 221 – Spring 2013**

Name: \_\_\_\_\_

1. A man is standing two feet in front of a flat mirror. He is located at the X shown below. He is looking at his reflection in the mirror. There is a woman standing two feet to the right of the man. Her position is shown by the O below. At which point does she see the image of the man?



- b. Use the thin-lens equation (works for mirrors also) to show the location of the image mathematically.
- c. Does the thin lens equation include information about the location of the observer? Why?
2. What is the difference between a double slit and a diffraction grating? Do they both cause diffraction and or interference?

3. Light of 550 nm is shone through two narrowly spaced slits 0.044 mm apart. The slits are placed 0.96 meters from a wall. If the space between the central maximum and the first bright line is 1.20 cm, determine the path difference between the two rays of light that make the first order **dark spot**.
  
4. A person has a near point of 60 cm and a far point of 75 m. Determine their prescription for glasses.
  
5. Draw an accurate ray diagram for the lens in the above question demonstrating an object at the new near point producing an image at the old near point.
  
6. Draw ray diagram(s) demonstrating what would happen if the mirror of a car were concave rather than convex. Assume that the typical mirror has a radius of curvature of 2.0 m. Describe what sort(s) of image(s) a driver would see and if this would be a viable alternative to the typical convex mirror.