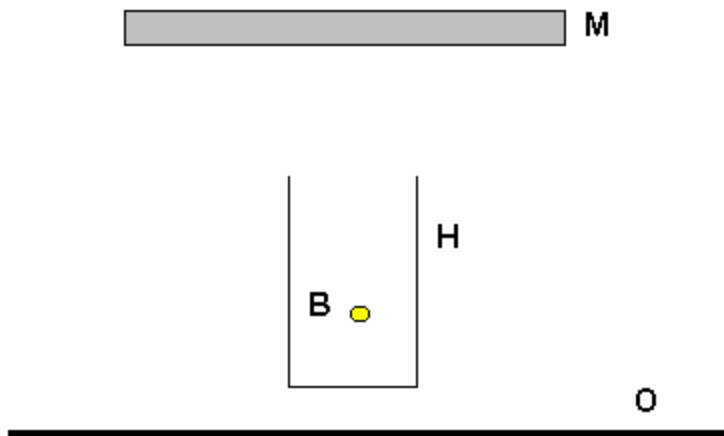**Quiz 5**
Phys 221

Names: _____

1. In the following diagram, M is a plane mirror; B is a very small bright light bulb that can be treated as a point source of light; and H is an opaque housing that does not transmit light. An observer can stand anywhere along a line O to try to see the image of the light bulb in the mirror.

By using relevant rays of light, determine those locations along the line O from which the image of B is visible and those locations from which it is not visible. Mark the regions along line O accordingly and **explain the reasoning** you used in drawing the rays.

M

H

B

O

2. Calculate the critical angle for diamond if it's in air and then if it's in water. The index of refraction for diamond is 2.42 and for water is 1.33.

$n_1 \sin \theta_1 = n_2 \sin \theta$