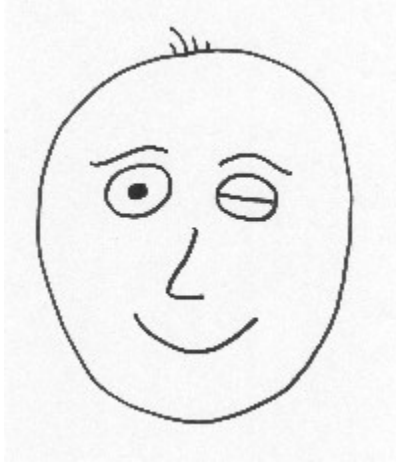


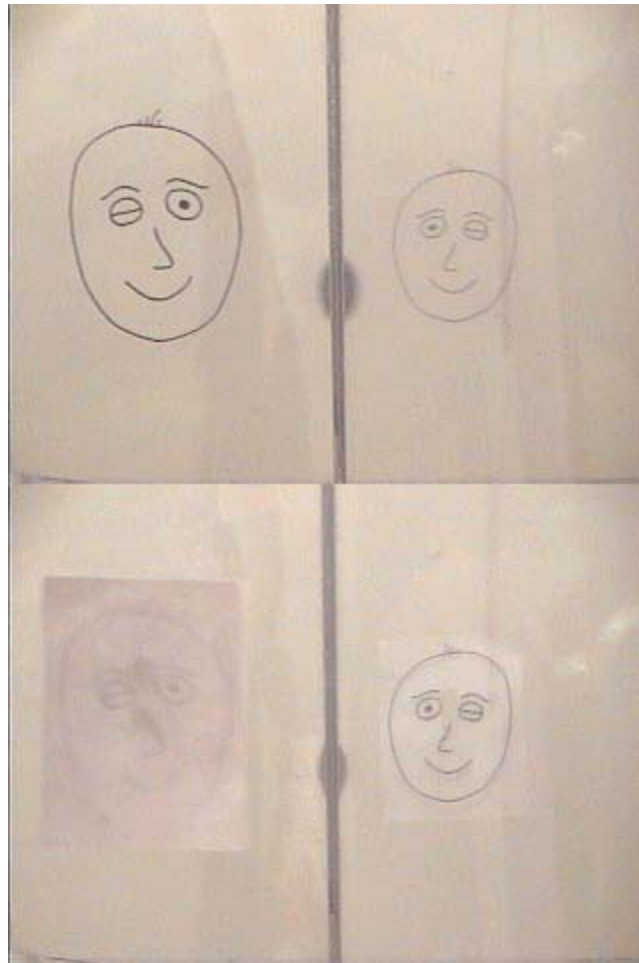
Answer #102

We will review the three problems in the order they were presented in the question. Here is Otto:



- 1. **A two-mirror corner reflector:** Otto will stand a short distance in front of the 90 degree corner between two plane mirrors, so that an observer *at the corner* would see Otto's face as in the photograph above.

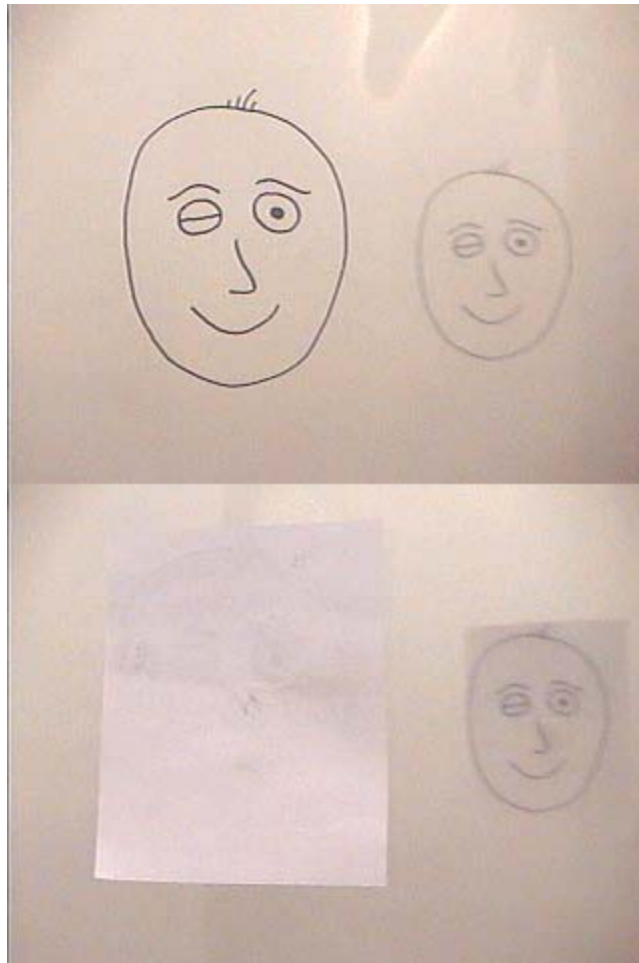
The image will appear as image (a), as seen in the photograph at the left below.



You must view the image from behind Otto, so in the picture Otto appears horizontally inverted from how he looks when you are facing him. The image is virtual, is located behind the corner of the reflector, and the magnification is 1. The photograph at the right includes a paper baffle behind Otto, so only his image can be seen. If you look at yourself in such a corner mirror, your image will always be at the corner and inverted horizontally. Notice the small gray oval at the corner of the mirrors. This is a reflection of the video camera used to make the photograph; the camera is hidden behind a white cardboard baffle so that it will be invisible in the photograph, and only the circular lens opening shows through a hole in the cardboard!

- 2. A **spherical convex mirror**: Otto will stand a short distance in front of a spherical convex mirror, so that an observer at the mirror would see Otto's face as in the photograph above.

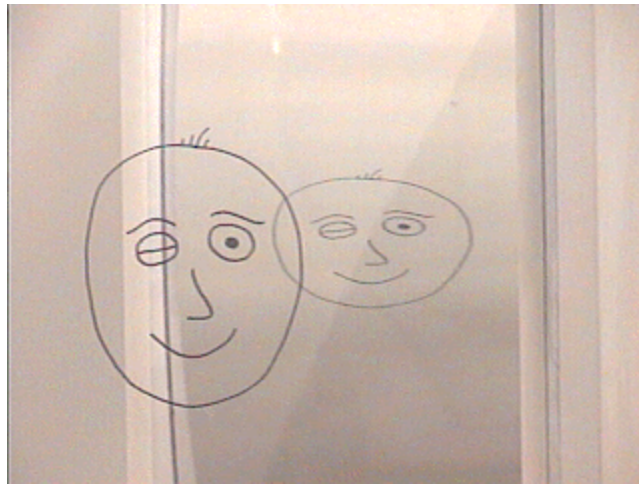
The image will appear as image (k), as seen in the photograph at the left below.



You must view the image looking from behind Otto into the mirror; in the photograph you can see both Otto (from behind) and his image. The image is smaller than Otto, and oriented the same way, so the image is not inverted in either up/down or left/right direction. The image is virtual because it is behind the mirror. The photograph at the right has a paper mask over the back of Otto, so only the image is visible.

- **3. A vertically focusing cylindrical convex mirror:** Otto will stand a short distance from a vertically focusing cylindrical convex mirror, oriented like a horizontal log in front of Otto. He again faces the mirror so that an observer at the mirror would see Otto's face as in the photograph above.

The image will appear as image (s), as seen in the photograph at the left below.



You must view the image looking from behind Otto into the mirror; in the photograph you can see both Otto (from behind) and his image. As seen in the previous example, a convex mirror produces a virtual image with no inversions, and the image is smaller. In the case of the vertically focusing cylindrical mirror, the image is smaller in the vertical direction but remains the same size in the horizontal direction.

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For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address given on the [Lecture-Demonstration Home Page](#).