

Question #302

The word "LIGHT," written in large upper-case letters is viewed by a TV camera, as seen in the photograph at the left below. The lens of the TV camera used here, however, has been replaced by a pinhole with diameter 0.020 inch, as seen in the photograph at the center below. The "pinhole image" produced on the videcon of the TV camera is seen on a video monitor, shown in the photograph at the right.



Part 1. First, we have a question about the image that you see in the photograph at the right above. Compared with the object, seen in the photograph at the left above, is the image:

- (a) upright?
- (b) inverted?

Is the image:

- (a) larger than the object?
- (b) smaller than the object?
- (c) about the same size as the object?

Part 2. Suppose that the 0.020 inch pinhole in the above case is replaced by one with diameter 0.032 inch. How will the "image" be changed, if at all?

Compared with the "image" of the word LIGHT using the 0.020 inch pinhole, the size of the "image" using the 0.032 inch pinhole will be:

- (a) larger.
- (b) smaller.
- (c) the same size.

Compared with the "image" of the word LIGHT using the 0.020 inch pinhole, the "image" using the 0.032 inch pinhole will be:

- (a) brighter.
- (b) dimmer.
- (c) about the same intensity.

Compared with the "image" of the word LIGHT using the 0.020 inch pinhole, the "image" using the 0.032 inch pinhole will be:

- (a) clearer.
- (b) blurrier.
- (c) about the same sharpness.

Click here for [Answer #302](#) after January 21, 2008.

[Question of the Week](#)

[Outreach Index Page](#)

[Lecture-Demonstration Home Page](#)



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](#).