

Answers to selected questions

Chapter 17

- Q6** No. A plane mirror cannot concentrate the light by changing the size of the image compared to the object. The image of a plane mirror is life size.
- Q12** To the fish the object appears farther from the surface than it really is. A light ray passing from the source in air is bent towards the normal, so the fish is sighting along a smaller angle with the normal and thus thinks the object is higher.
- Q18** Yes. A magnified virtual image is formed by a positive lens when the object is placed between the focal point and the lens.
- Q24** Farther. The image will be virtual, erect and located behind the mirror. (See Figure 17.21)
- Q30** A near sighted person cannot see things clearly that are far away because the lens is too strong and focuses light from distant objects in front of the retina rather than on the retina. This is due primarily to the cornea being too strongly curved.
- Q36** The image seen in a telescope is upside-down, while that of a binocular is right-side up. Also the binoculars allow 3-D imaging because we can use both eyes. (Also, binoculars are easier to carry.)