

Chapter 30 Test Lenses

True or False Questions*Circle the correct answer.*

- T** **F** 1. A real image can be projected onto a screen.
- T** **F** 2. The eye contains a converging lens that focuses light.
- T** **F** 3. Nearsighted people can clearly see objects that are close to them.
- T** **F** 4. A real image formed by a single converging lens is always upside down.
- T** **F** 5. A single diverging lens will produce an image that is always virtual, smaller, and right-side up.

Multiple Choice Questions*Choose the best answer to each question and write the appropriate letter in the space provided.*

- _____ 6. A converging lens
- a. is thicker in the center than at the edges.
 - b. will converge parallel rays of light.
 - c. refracts parallel rays of light.
 - d. all of the above
- _____ 7. All lenses rely on light having a
- a. consistent speed everywhere.
 - b. lower average speed in the lens.
 - c. wavelength and frequency, the product of which equals c .
 - d. none of these
- _____ 8. In drawing a ray diagram, a useful ray can be drawn
- a. parallel to the axis.
 - b. through the center of the lens.
 - c. through the focal point in front of the lens.
 - d. all of the above
- _____ 9. If an object is located between the focal point and a converging lens, the image will be
- a. upside down.
 - b. real.
 - c. larger than the object.
 - d. all of the above
- _____ 10. A simple astronomical telescope consists of
- a. several sets of lenses that focus an image on the eye.
 - b. a single lens that focuses an image on a piece of film.
 - c. a pair of converging lenses.
 - d. condenser lenses, prisms, and a projection lens.

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- _____ 11. Which instrument is a human eye most similar to?
- telescope
 - microscope
 - camera
 - slide projector
- _____ 12. The eyes of nearsighted people focus light
- in front of the retina.
 - behind the retina.
 - at the retina.
- _____ 13. Farsighted people need to wear glasses using
- converging lenses.
 - diverging lenses.
 - neither converging nor diverging lenses.
- _____ 14. Spherical aberration occurs when light passes through
- a round lens.
 - the center part of a lens.
 - the edges of a lens.
 - spherical lenses.
- _____ 15. Chromatic aberration occurs because different colored light rays
- focus at different places after reflection from a mirror.
 - refract at different angles when passing through a lens.
 - pass through different parts of a lens.
 - none of the above

Essay Question

On a separate sheet of paper, answer the following question.

16. Explain how a pinhole camera works. Use a ray diagram to show how the image forms.