Key Terms

aberration a distortion in an image produced by a lens

angle of incidence the angle, with respect to the normal, at which a ray meets a boundary between media or a reflective surface

angle of reflection the angle, with respect to the normal, at which a ray leaves a reflective surface

angle of refraction the angle between the normal and the refracted ray

central axis a line perpendicular to the center of a lens or mirror extending in both directions

chromatic aberration an aberration related to color

concave lens a lens that causes light rays to diverge from the central axis

concave mirror a mirror with a reflective side that is curved inward

converging lens a convex lens

convex lens a lens that causes light rays to converge toward the central axis

convex mirror a mirror with a reflective side that is curved outward

critical angle an incident angle that produces an angle of refraction of 90°

dispersion separation of white light into its component wavelengths

diverging lens a concave lens

focal length the distance from the focal point to the mirror

focal point the point at which rays converge or appear to converge

incident ray the incoming ray toward a medium boundary or a reflective surface

index of refraction the speed of light in a vacuum divided by the speed of light in a given material

law of reflection the law that indicates the angle of reflection equals the angle of incidence

law of refraction the law that describes the relationship between refractive indices of materials on both sides of a boundary and the change in the path of light crossing the boundary, as given by the equation $n_1 \sin \theta_1 = n_2 \sin \theta_2$

ray light traveling in a straight line

real image an optical image formed when light rays converge and pass through the image, producing an image that can be projected onto a screen

refracted ray the light ray after it has been refracted

Snell's law the law of refraction expressed mathematically as $n_1 \sin\theta_1 = n_2 \sin\theta_2$

total internal reflection reflection of light traveling through a medium with a large refractive index at a boundary of a medium with a low refractive index under conditions such that refraction cannot occur

virtual image the point from which light rays appear to diverge without actually doing so