

Answer on Question #65431, Physics / Optics

Why rainbow appears curved? What is the angle of incidence and emergence out of rain drops?

Solution:

Water drops form a rainbow. Water drops have a rounded shape. The light is coming out of each water drop. The light recreates surface of the water drop. In this way, the rainbow is shaped like a semicircle.

The light is refracted at the surface of the water drop. Water drop decomposes white light into seven basic colors. It is violet, indigo, blue, green, yellow, orange, and red. Light hits the back of the water drop. The angle of incidence is greater than the critical angle for mediums "water-air". It is a phenomenon of total internal reflection of light. In this way, light is reflected off the back of the water drop. Light refracted as it exits the water drop. The eyes of the observer include only those rays which formed with direction "Sun-observer" definite angle - about 42° . It is a radius angle of the rainbow.

