

Refraction at spherical surface.(concave surface)

1. With the help of ray diagram , show the formation of image of a point object by refraction of light at a concave spherical surface(when object lies in rarer medium) separating two media of refractive indices n_1 and n_2 ($n_2 > n_1$) respectively. Using this diagram derive the relation
$$n_2/v - n_1/u = (n_2 - n_1)/R.$$
2. With the help of ray diagram , show the formation of image of a point object by refraction of light at a concave spherical surface(when object lies in denser medium) separating two media of refractive indices n_1 and n_2 ($n_2 > n_1$) respectively. Using this diagram derive the relation
$$n_1/v - n_2/u = (n_1 - n_2)/R.$$