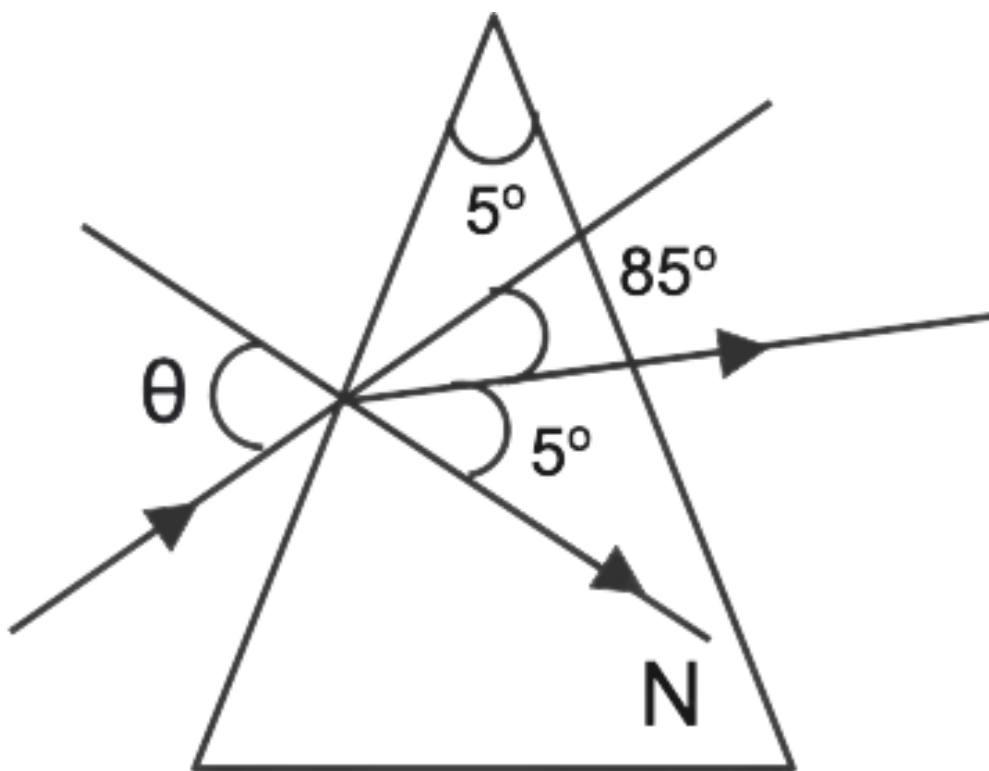Question 8. A beam of light incident at an angle on a prism refracting face generally emerges from the opposite face. The angle of incidence is 5° if the prism is 5° and the prism is built of a material with a refractive index of 1.5.

(a) 7.5°

(b) 5°

(c) 15°

(d) 2.5°

Solution: (a) 7.5°

$$A = 5°$$

μ=1.5

$$i_2 = 0°$$

$$r_2 = 0°$$

$$r_1 + r_2 = A$$

$$r_1 = A - r_2 = 5 - 0 = 5°$$

$$\mu = \sin i_1 \sin r_1$$

$$\sin i_1 = \sin r_1$$

=>sini1=μsinr1

=1.5×sin5°

=1.5×sin5°

=1.5×0.087

=1.5×0.087

=0.1305

=7.5°