



$$R_{ac}R_{bc} = (-\delta_{ac} + 2n_a n_c) (-\delta_{bc} + 2n_b n_c)$$

$$= \delta_{ac} \delta_{cb} - 2\delta_{ac} n_c n_b - 2\delta_{bc} n_c n_a + 4n_a n_b n_c n_c$$

$$= \delta_{ab} - 2n_a n_b - 2n_b n_a + 4n_a n_b \underbrace{n_c n_c}_{\text{repeated index: scalar product}}$$

repeated index: scalar product

n is a unit vector

$$n_c n_c = |\underline{n}|^2 = 1$$

$$= \delta_{ab} - 4\cancel{n_a n_b} + 4\cancel{n_a n_b}$$

$$= \delta_{ab}$$

