

Let n be a positive integer and let

$$a_k = \frac{1}{\binom{n}{k}}, \quad b_k = 2^{k-n}, \quad \text{for } k = 1, 2, \dots, n.$$

Show that

$$\frac{a_1 - b_1}{1} + \frac{a_2 - b_2}{2} + \dots + \frac{a_n - b_n}{n} = 0.$$