

If we have two sets of real positive numbers $\{X_1, \dots, X_N\}$ and $\{Y_1, \dots, Y_N\}$ and formulate the following identity,

$$C = \sum_{i=1}^N \frac{X_i}{Y_i} \sum_{i=1}^N Y_i . \tag{1}$$

Are there any mathematical theorems related to the case of all $Y_i \gg X_i$? I am thinking that it should be $C \approx N \sum_{i=1}^N X_i$ but I am not sure how to prove this or if there already is a theorem related to this.