Math555 Homework 11

Note: To submit the k-th homework, simply put your files in the folder `HWk` on CoCalc, and it will be collected on the due day.

1. Compute
$$A = \sum_{n \geqslant 0} \frac{n^2}{n!}, B = \sum_{n \geqslant 0} \frac{n}{n!}, \text{ and } C = \sum_{n \geqslant 0} \frac{1}{n!}.$$

   Then find the value of
$$\sum_{n \geqslant 0} \frac{n^2 + 3n - 2}{n!}.$$

2. Use Sage to calculate the formula for $\sum_{k=1}^{N} k^3$. If possible, write a function to compute the formula for $\sum_{k=1}^{N} k^p$. See the file `SageProject6_blank.sagews` in your CoCalc folder.