

Question 2 (20 marks)

MAST90053 Experimental Mathematics

Due 3pm AEST on Thursday 2 July 2020

Express the following sum as a hypergeometric term:

$$f_n = \sum_{k=0}^{n-1} \frac{(2n+1)!}{(2n-2k-1)!(2k+j-1)!}$$

where $n, j \in \mathbb{Z}_{\geq 1}$.

Use the Wilf–Zeilberger method to certify the identity you obtain, and verify the WZ certificate.