
Multi-headed Lattice Green Function (N = 4, M = 2)

REC for $r_{2,4}(n)$ in Theorem 6.1

$$\begin{aligned} Out[n] = & - \left(-287\,649\,792 - 787\,304\,448\,\alpha - 833\,891\,328\,\alpha^2 - \right. \\ & \left. 441\,427\,968\,\alpha^3 - 123\,641\,856\,\alpha^4 - 17\,418\,240\,\alpha^5 - 967\,680\,\alpha^6 \right) Seq[\alpha] - \\ & \left(-708\,258\,816 - 1\,417\,457\,664\,\alpha - 1\,162\,038\,528\,\alpha^2 - 498\,714\,624\,\alpha^3 - \right. \\ & \left. 117\,891\,072\,\alpha^4 - 14\,515\,200\,\alpha^5 - 725\,760\,\alpha^6 \right) Seq[1 + \alpha] - \\ & \left(-379\,157\,760 - 643\,100\,256\,\alpha - 452\,539\,152\,\alpha^2 - 168\,897\,600\,\alpha^3 - \right. \\ & \left. 35\,209\,440\,\alpha^4 - 3\,880\,800\,\alpha^5 - 176\,400\,\alpha^6 \right) Seq[2 + \alpha] - \\ & \left(-55\,519\,056 - 84\,088\,296\,\alpha - 52\,997\,120\,\alpha^2 - 17\,786\,040\,\alpha^3 - 3\,351\,200\,\alpha^4 - 336\,000\,\alpha^5 - 14\,000\,\alpha^6 \right) \\ & Seq[3 + \alpha] - \left(638\,976 + 904\,864\,\alpha + 533\,288\,\alpha^2 + 167\,156\,\alpha^3 + 29\,341\,\alpha^4 + 2730\,\alpha^5 + 105\,\alpha^6 \right) Seq[4 + \alpha] - \\ & \left(345\,000 + 451\,000\,\alpha + 244\,675\,\alpha^2 + 70\,540\,\alpha^3 + 11\,402\,\alpha^4 + 980\,\alpha^5 + 35\,\alpha^6 \right) Seq[5 + \alpha] \end{aligned}$$