

Pensieve header: Verifying the generating function for Sam_ϵ .

$$\text{In}[*]:= \rho a = \begin{pmatrix} \epsilon & 0 \\ 0 & 0 \end{pmatrix}; \rho x = \begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix};$$

$$\rho a \cdot \rho x - \rho x \cdot \rho a == \epsilon \rho x$$

Out[*]= True

pdf

$$\text{In}[*]:= \rho a = \begin{pmatrix} \epsilon & 0 \\ 0 & 0 \end{pmatrix}; \rho x = \begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix}; \text{exp} = \text{MatrixExp};$$

Simplify[

$$\text{exp}[\alpha_i \rho a] \cdot \text{exp}[\xi_i \rho x] \cdot \text{exp}[\alpha_j \rho a] \cdot \text{exp}[\xi_j \rho x] == \text{exp}[(\alpha_i + \alpha_j) \rho a] \cdot \text{exp}[(e^{-\epsilon \alpha_j} \xi_i + \xi_j) \rho x]$$

pdf

Out[*]= True