$$(1+x)_q^{\infty} = \sum_n^{\mathbb{N}} \frac{q^{n\,(n-1)\,/2} x^n}{\prod\limits_{1 \leqslant k \leqslant n} \left(1-q^k\right)}$$

$$(1+x)_q^{\alpha} = \frac{(1+x)_q^{\infty}}{(1+q^{\alpha}x)_q^{\infty}}$$

$$(1+x)_q^{\alpha+\beta} = (1+x)_q^{\alpha}\,(1+q^{\alpha}x)_q^{\beta}$$

$$\begin{array}{c|c} \overbrace{1-z\overset{*}{z}}^{-\,1/2} & \overbrace{1-z\overset{*}{z}}^{-\,1/2} z \\ \hline z\overbrace{1-\overset{*}{z}z}^{-\,1/2} & \overbrace{1-\overset{*}{z}z}^{-\,1/2} \end{array} \quad \begin{array}{c|c} \overbrace{1-z\overset{*}{z}}^{-\,1/2} & -\overbrace{1-z\overset{*}{z}}^{-\,1/2} z \\ \hline -z\overbrace{1-\overset{*}{z}z}^{-\,1/2} & \overbrace{1-\overset{*}{z}z}^{-\,1/2} \end{array} = \begin{array}{c|c} 1 & 0 \\ \hline 0 & 1 \end{array}$$

$$\begin{array}{c|c} \widetilde{a} & \widetilde{b} \\ \hline \widetilde{c} & \widetilde{d} \end{array} = \begin{array}{c|c} \overbrace{1-z\overset{*}{z}}^{-\,1/2} & \overbrace{1-z\overset{*}{z}}^{-\,1/2} z \\ \hline z\overbrace{1-\overset{*}{z}z}^{-\,1/2} & \overbrace{1-\overset{*}{z}z}^{-\,1/2} \end{array}$$

$$q\,\widetilde{a}\,\widetilde{b} - \widetilde{b}\,\widetilde{a} =$$

$$q\,\widetilde{a}\,\widetilde{c} - \widetilde{c}\,\widetilde{a} =$$

$$q\,\widetilde{b}\,\widetilde{d} - \widetilde{d}\,\widetilde{a} =$$

$$q\,\widetilde{c}\,\widetilde{d} - \widetilde{d}\,\widetilde{c} =$$