

$$\begin{aligned}
\overline{a_p a_q^\dagger} &= a_p a_q^\dagger - n[a_p a_q^\dagger] \\
&= a_p a_q^\dagger - (-a_q^\dagger a_p) \\
&= \{a_p a_q^\dagger\} = \delta_{pq}
\end{aligned}$$

$$\begin{aligned}
\overline{a_p^\dagger a_q} &= a_p^\dagger a_q - n[a_p^\dagger a_q] \\
&= a_p^\dagger a_q - a_p^\dagger a_q = 0
\end{aligned}$$

$$\begin{aligned}
\overline{a_p^\dagger a_q^\dagger} &= a_p^\dagger a_q^\dagger - n[a_p^\dagger a_q^\dagger] \\
&= a_p^\dagger a_q^\dagger - a_p^\dagger a_q^\dagger = 0
\end{aligned}$$