

$$\left( \begin{array}{c} | \\ \uparrow \\ \downarrow \\ , \\ \cdot \\ \rangle \end{array} \right) - \left( \begin{array}{c} | \\ \cdot \\ , \\ \uparrow \\ \downarrow \\ \rangle \end{array} \right) = a \left( \begin{array}{c} | \\ \uparrow \\ , \\ \downarrow \\ \rangle \end{array} \right) - \left( \begin{array}{c} | \\ \downarrow \\ , \\ \uparrow \\ \rangle \end{array} \right)$$