

$$[1.1] \quad \{ \langle A | + \langle B | \} | c \rangle \stackrel{(2)}{=} \langle c | \{ | A \rangle + | B \rangle \}^* \stackrel{(1)}{=} (\langle c | A \rangle + \langle c | B \rangle)^*$$

$$\stackrel{*}{=} \langle c | A \rangle^* + \langle c | B \rangle^* = \langle A | c \rangle + \langle B | c \rangle \checkmark$$

$$\begin{aligned} * \quad [(a+bi) + (c+di)]^* &= [(a+c) + (b+d)i]^* = (a+c) - (b+d)i = (a-bi) + (c-di) \\ &= (a+bi)^* + (c+di)^* \end{aligned}$$