4.1 show inner product of $|A\rangle$ and $|B\rangle$ is the same as the inner product of $U|A\rangle$ and $U|B\rangle$ if U is a unitary operator

Solution: $\langle A|U^\dagger U|B\rangle = \langle A|I|B\rangle = \langle A|IB\rangle = \langle A|B\rangle$