# THE CHINESE UNIVERSITY OF HONG KONG Department of Mathematics <br> MATH4010 Functional Analysis 2021-22 Term 1 <br> Homework 6 <br> Deadline: 2021-11-29 Monday 

Notice:

- All the assignments must be submitted before the deadline.
- Each assignment should include your name and student ID number.

1. Prove that in a complex (resp. real) inner product space, $x \perp y$ if and only if

$$
\|x+\lambda y\|=\|x-\lambda y\|
$$

for all scalars $\lambda \in \mathbb{C}($ resp. $\mathbb{R})$.

