Chapter 3: Operators

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Problem 3.6. *Prove that $\hat{A} + \hat{B} = \hat{B} + \hat{A}$.*

Two operators $\hat{A}$ and $\hat{B}$ are said to be equal if $\hat{A}f = \hat{B}f$ for all functions f.

Proof.
$$(\hat{A} + \hat{B})f = \hat{A}f + \hat{B}f = \hat{B}f + \hat{A}f = (\hat{B} + \hat{A})f$$
holds for any function f. By definition, $\hat{A} + \hat{B} = \hat{B} + \hat{A}$. $\square$