Exercise 1 Let $\overrightarrow{\mathbf{u}} = \langle 1, -2 \rangle$ and $\overrightarrow{\mathbf{v}} = \langle 1, 1 \rangle$ be two vectors. Find the vector $2\overrightarrow{\mathbf{u}} - 3\overrightarrow{\mathbf{v}}$.

$$2\overrightarrow{\mathbf{u}} - 3\overrightarrow{\mathbf{v}} = \langle \boxed{-1}, \boxed{-7} \rangle$$