4 The vectors $\mathbf{v}_1$ and $\mathbf{v}_2$ are defined by $\mathbf{v}_1 = 2a\mathbf{i} + b\mathbf{j}$ and $\mathbf{v}_2 = b\mathbf{i} - 3\mathbf{j}$ where a and b are constants.

Given that $3\mathbf{v}_1 + \mathbf{v}_2 = 22\mathbf{i} - 9\mathbf{j}$, find the values of a and b. **[4]**