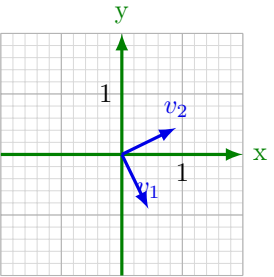
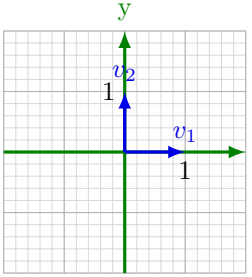
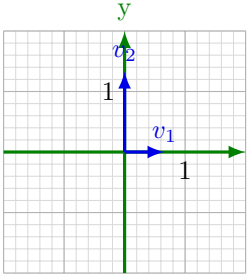


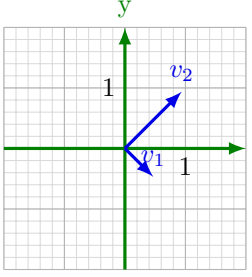
$$I[v_1, v_2] = \frac{1}{\sqrt{5}} \begin{pmatrix} 1 & -2 \\ 2 & 1 \end{pmatrix}$$



$$V^T[v_1, v_2] = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$



$$\Sigma V^T[v_1, v_2] = \begin{pmatrix} 2/3 & 0 \\ 0 & 4/3 \end{pmatrix}$$



$$U\Sigma V^T[v_1, v_2] = \begin{pmatrix} \sqrt{2}/3 & 2\sqrt{2}/3 \\ -\sqrt{2}/3 & 2\sqrt{2}/3 \end{pmatrix}$$