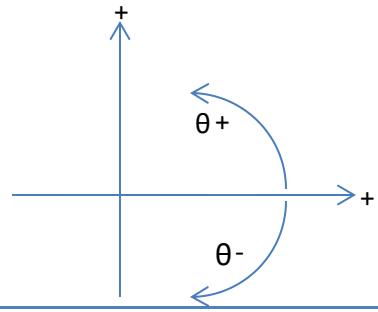


2D Collision Problems – Matrix Template



Matrix Formulation

$$m_1 \begin{bmatrix} v_1 \cos \theta_1 \\ v_1 \sin \theta_1 \\ 0 \end{bmatrix} + m_2 \begin{bmatrix} v_2 \cos \theta_2 \\ v_2 \sin \theta_2 \\ 0 \end{bmatrix} = m_1 \begin{bmatrix} v_{1f} \cos \theta_{1f} \\ v_{1f} \sin \theta_{1f} \\ 0 \end{bmatrix} + m_2 \begin{bmatrix} v_{2f} \cos \theta_{2f} \\ v_{2f} \sin \theta_{2f} \\ 0 \end{bmatrix}$$