

1. Compute $\rho_{O, \frac{\pi}{2}} \rho_{\begin{bmatrix} 2 \\ 0 \end{bmatrix}, \frac{\pi}{2}}$ explicitly.
2. Compute $\rho_{\begin{bmatrix} 0 \\ 1 \end{bmatrix}, -\frac{\pi}{2}} \rho_{\begin{bmatrix} 1 \\ 0 \end{bmatrix}, \frac{\pi}{2}}$ explicitly.
3. Compute $\tau_{O, \begin{bmatrix} 0 \\ -2 \end{bmatrix}} \rho_{O, \frac{2\pi}{3}}$ explicitly.
4. Let ℓ be the line $y = 0$ (the x -axis), and m the line $y = x$. Compute $\sigma_m \sigma_\ell \sigma_m$ explicitly.
5. Let ℓ be the line $y = 4x + 6$, m the line $y = 4x - 2$, and n the line $y = -\frac{1}{4}x$. Calculate the following explicitly:
 - a) $\sigma_n \sigma_\ell$
 - b) $\sigma_n \sigma_m$
 - c) $\sigma_m \sigma_\ell$.