

2. Let $T : \mathbf{R}^2 \rightarrow \mathbf{R}^2$ be rotation *clockwise* by 60° . Let $U : \mathbf{R}^2 \rightarrow \mathbf{R}^2$ be the linear transformation satisfying $U(1, 0) = (-2, 1)$ and $U(0, 1) = (1, 0)$.

a) Find the standard matrix for the composition $U \circ T$ using matrix multiplication.

b) Find the standard matrix for the composition $T \circ U$ using matrix multiplication.

c) Is rotating clockwise by 60° and then performing U , the same as first performing U and then rotating clockwise by 60° ?