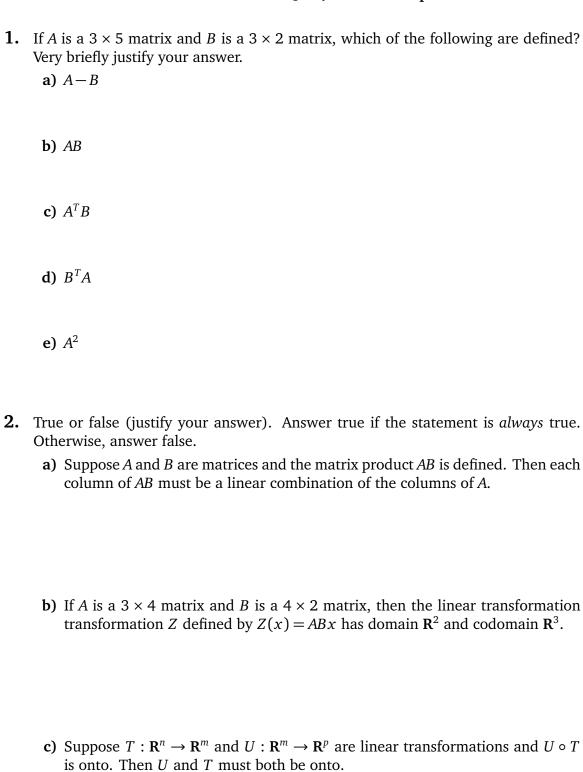
## Math 1553 Worksheet §4.4, Matrix Multiplication



- **3.** Let  $T: \mathbb{R}^2 \to \mathbb{R}^2$  be rotation *clockwise* by 60°. Let  $U: \mathbb{R}^2 \to \mathbb{R}^2$  be the linear transformation with standard matrix  $\begin{pmatrix} -2 & 1 \\ 1 & 0 \end{pmatrix}$ .
  - **a)** Find the standard matrix for the composition  $U \circ T$ .

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

**c)** Is rotating clockwise by  $60^{\circ}$  and then performing U, the same as first performing U and then rotating clockwise by  $60^{\circ}$ ?