9. (a) Let F be the transformation of the plane that is a reflection in the line $y = x$. By considering the images under F of the standard basis vectors for $\mathbb{R}^2$, or otherwise, write down the matrix A corresponding to F. [3]

   (b) Let R be the transformation of the plane that is an anti-clockwise rotation about the origin through $60°$. Write down the matrix B corresponding to R. [3]

   (c) Calculate the matrix for the transformation that consists of first applying F and then applying R (we denote this RF). Is this is the same transformation as FR? [4]