

**MAU22E01 2020 (SF Engineers & MSISS & MEMS)****S h e e t 2**

---

Assignment sheet - will be marked - due next Monday, October 19

---

**Exercise 1**

Use matrix multiplication to find:

- (i) the reflection of the vector  $(1, 2)$  about the  $y$ -axis;
- (ii) the orthogonal projection of the vector  $(1, 2, 3)$  to the  $xy$ -plane;
- (iii) the image of the vector  $(1, 2)$  under rotation through the angle  $\frac{-\pi}{4}$  about the origin.
- (iv) the image of the vector  $(2, -1, 1)$  under rotation through the angle  $\frac{\pi}{3}$  about  $x$ -axis.

**Exercise 2**

For each of the vectors:

$$\mathbf{u}_1 = (1, -2, -1), \quad \mathbf{u}_2 = (1, -2, 0, 0, -1),$$

- (i) find parametric equations for the line spanned by the vector;
- (ii) give implicit equations that determine that line.