1. Multiply the following two matrices:

$$\begin{pmatrix} 1+i & i & 2 \\ 0 & -7 & 1 \\ 0 & -3i & 6 \end{pmatrix} \begin{pmatrix} 1-i & i & 1 \\ 0 & -7 & 0 \\ 1 & -3i & 6 \end{pmatrix}$$

2. Find the determinant of the following matrix:

$$\begin{pmatrix} re^{i\theta} & 3 & 1 \\ 0 & se^{i\phi} & 7 \\ 3 & 0 & -2 \end{pmatrix}$$