1. Using Mathematica, find a parametric expression for the plane in $\mathbb{R}^3$ that contains the points $(5, 5, 12)$, $(16, -5, 4)$, and $(-1, 0, 14)$. What is the proper classification of this subspace?

2. (a). Use Mathematica to multiply two $6 \times 6$ matrices together (your choice!).
(b). Find the inverse of each of these matrices. Show by explicit calculation for your example that $(AB)^{-1} = B^{-1}A^{-1}$, where the order is important.

3. The exponential of a square matrix $A$ can be defined by the power series:

$$
\exp(A) = I + A + \frac{1}{2!}A^2 + \frac{1}{3!}A^3 + ... 
$$

where $I$ is the unit (identity) matrix. Use this definition to find $\exp(A)$, where $A = \{\{0, 1\}, \{1, 0\}\}$.