1. Let A and B be two $n \times n$ matrices. For each of the following statements, write the word "true" or "false."

   (a) If A and B are invertible, then so is AB.
   True.

   (b) If $A + B$ is invertible, then so is at least one out of A and B.
   False.

2. Find all solutions to the following system of equations.

$$\begin{aligned} x + z &= 6 \\ (1-i)y - (2-3i)z &= -6 + 12i \\ 2x + y - z &= 1 + i \end{aligned}$$

   There is a unique solution: $x = 2$, $y = 1 + i$, and $z = 4$.