NAME & ID(Please print legibly)

PLEASE SHOW ALL YOUR WORK.

1. Find the complete solution of

$$
\begin{aligned}
x + 2y + z &= 1 \\
2x - y + z &= 2 \\
4x + 3y + 3z &= 4 \\
3x + y + 2z &= 3
\end{aligned}
$$

2. Consider a linear system whose augmented matrix is of the form

$$
\left[\begin{array}{cccc}
1 & 1 & 3 & 2 \\
1 & 2 & 4 & 3 \\
1 & 3 & a & b
\end{array}\right]
$$

   (a) For what values of a and b will the system have infinitely many solutions?

   (b) For what values of a and b will the system be inconsistent?