1. (5 points) Solve the system of linear equations.

\[
\begin{align*}
2x_1 + x_2 &= \frac{1}{2} \\
2x_1 + 6x_2 &= 2
\end{align*}
\]

2. (5 points) Determine the values of \( C \) for which the following system of linear equations has one solution, no solutions, and infinitely many solutions.

\[
\begin{align*}
x_1 + Cx_2 &= 1 \\
x_1 + x_2 &= \frac{1}{2}
\end{align*}
\]