1. (a) (7 points) Find the general solution of

\[ y^{(4)} - 2y^{(3)} + 9y'' + 2y' - 10y = 0. \]

(b) (3 points) Suppose a differential equation with constant coefficients has a characteristic equation

\[ (r^2 + 2)^2(r - 2)^3(r + 1) = 0. \]

State the general solution.

2. (10 points) Find the general solution of

\[
\begin{align*}
x' &= x + y - t \\
y' &= x - y
\end{align*}
\]