EDDE. PROBLEM SET 9

1. Using the Laplace transformation method, solve

$$
\begin{cases}
x''(t) - 4x'(t) + 3x(t) &=& 3 \\
x(0) &=& -2 \\
x'(0) &=& 3
\end{cases}
$$

$$
\begin{cases}
x''(t) - 4x'(t) + 4x(t) &=& -4 \\
x(0) &=& -2 \\
x'(0) &=& 3
\end{cases}
$$

$$
\begin{cases}
x''(t) - 4x'(t) + 5x(t) &=& 5 \\
x(0) &=& -2 \\
x'(0) &=& 3
\end{cases}
$$

Why are the final answers rather dissimilar, although the problems are almost identical?

2. Using the Laplace transformation method, solve

$$
\begin{cases}
x''(t) + x'(t) - 2x(t) &=& 4t + 3e^t \\
x(0) &=& -3 \\
x'(0) &=& 6
\end{cases}
$$