Homework #6 — due Monday, 3/11

6.1: #5(b), #12, #14
6.2: #21, #22
Additional problems (below)

A1 Using the Laplace transform, solve the initial value problem

$$\begin{aligned}
\require{cancel}\cancel{y^{(4)} - 3y^{(2)} - 4 = 0} \quad & \textcolor{red}{\textbf{CORRECTION}}\\
y^{(4)} - 3y^{(2)} - 4y &= 0\\
y(0) &= 4\\
y'(0) &= 3/2\\
y''(0) &= 1\\
y'''(0) &= 17/2
\end{aligned}$$

(Hint: to factor $s^4 - 3s^2 - 4$, start by substituting $r = s^2$.)

A2 Using the Laplace transform, solve the initial value problem

$$\begin{aligned}
y^{(3)} - 4y' &= 6e^{-t}\\
y(0) &= -1\\
y'(0) &= 0\\
y''(0) &= 2
\end{aligned}$$

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