Homework 2

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Homework 2, Problem 1

$$\begin{aligned}
\frac{s\omega(s)}{0.25} &= \frac{2.5(s+2)}{(s+5)(s+1)^2} \\
\omega(s) &= \frac{5}{8}\left(\frac{s+2}{s(s+5)(s+1)^2}\right) \\
\omega(s) &= \frac{5}{8}\left(-\frac{7}{16(s+1)} + \frac{3}{80(s+5)} - \frac{1}{4(s+1)^2} + \frac{2}{5s}\right) \\
\omega(t) &= \frac{5}{8}\left(-\frac{1}{4}te^{-t} + \frac{3e^{-5t}}{80} - \frac{7e^{-t}}{16} + \frac{2}{5}\right)
\end{aligned}$$

Homework 2, Problem 6

Homework 3, Problem 2

Homework 3, Problem 3

Homework 3, Problem 5