HOMEWORK #10 (Laplace Transform)

Due on June 14

1) Find the Laplace transform $L\left\{\left(1-e^{t}+3e^{-4t}\right)\cos 5t\right\}$ (Problem 9, page 212)
2) Find the inverse Laplace transform $L^{-1}\left\{\dfrac{2s-1}{s^{2}(s+1)^{3}}\right\}$ (Problem 19, page 212)
3) Use the Laplace transform to Solve $y''-y'=e^{t}\cos t, \quad y(0)=0, y'(0)=0$ (Problem 29, page 212)
4) Find the Laplace transform $L\left\{\cos(2t)\ \mathrm{U}\ (t-\pi)\right\}$ (Problem 41, page 213)
5) Find the inverse Laplace transform $L^{-1}\left\{\dfrac{e^{-s}}{s(s+1)}\right\}$ (Problem 47, page 213)
6) Use the Laplace transform to Solve $y''+y=f(t), \quad y(0)=0, y'(0)=1$ where

$$f(t)=\begin{cases}0, & 0\le t<\pi\\ 1, & \pi\le t\le 2\pi\\ 0, & t\ge 2\pi\end{cases}$$ (Problem 69, page 214)