Assignment 10

1. Determine the inverse Laplace transform of each of the following functions.
   a. $F(s) = \frac{1}{s} + \frac{2}{s+1}$
   b. $F(s) = \frac{e^{-4s}}{s+2}$
   c. $F(s) = \frac{3s+1}{s+4}$
   d. $F(s) = \frac{4}{(s+1)(s+3)}$
   e. $F(s) = \frac{6s}{(s+1)(s+2)}$
   f. $F(s) = \frac{s^2+2}{s^3+2s^2+2s}$
   g. $F(s) = \frac{10}{(s+1)(s^2+4s+8)}$
   h. $F(s) = \frac{2}{s(s+1)^2}$
   i. $F(s) = \frac{8}{s(s+1)^3}$
   j. Given that $v(0^-) = 5,\ v'(0^-) = 10$, solve the following equation for the $v(t)$.

$$\frac{d^2v(t)}{dt^2} + 5\frac{dv(t)}{dt} + 6v(t) = 25e^{-t}u(t)$$