

PROBLEM SET #4**Chapter 15, Solution 3.**

$$(b) \quad L[e^{-2t} \sin(4t) u(t)] = \frac{4}{(s+2)^2 + 16}$$

Chapter 15, Solution 8.

$$(a) \quad 2t=2(t-4) + 8$$

$$f(t) = 2tu(t-4) = 2(t-4)u(t-4) + 8u(t-4)$$

$$F(s) = \frac{2}{s^2} e^{-4s} + \frac{8}{s} e^{-4s} = \left(\frac{2}{s^2} + \frac{8}{s} \right) e^{-4s}$$

Chapter 15, Solution 19.

Since $L[\delta(t)] = 1$ and $T = 2$, $F(s) = \frac{1}{1 - e^{-2s}}$