1. Find the inverse Laplace transform $f(t)$ of $F(s) = \frac{e^{-2s}}{s-3}$, and sketch the graph of $f(t)$.

2. Let

$$f(t) = \begin{cases} 
0 & \text{if } 0 \leq t < 3; \\
2 & \text{if } 3 \leq t < 5; \\
0 & \text{if } 5 \leq t.
\end{cases}$$

Sketch the graph of $f(t)$, rewrite $f(t)$ in terms of the step functions $u_a(t)$, and then find the Laplace transform of $f(t)$.

3. Let $f(t)$ be the periodic function with period 2 with $f(t) = 1$ for $0 \leq t < 1$ and $f(t) = 0$ for $1 \leq t < 2$. Sketch the graph of $f(t)$. Find the Laplace transform of $f(t)$.

4. Let $f(t)$ be the periodic function with period 2 with $f(t) = t$ for $0 \leq t < 1$ and $f(t) = 0$ for $1 \leq t < 2$. Sketch the graph of $f(t)$. Find the Laplace transform of $f(t)$.

Suggested problems from the book (DO NOT SUBMIT): Pg 482-483, #3, 8, 12, 16, 26, 28, 31