MATH 2340 WARM-UP PROBLEMS

1. Consider the function

$$f(t) = \begin{cases} 0 & \text{if } t < 1 \\ t - 1 & \text{if } 1 \leq t < 2 \\ -t + 2 & \text{if } 2 \leq t < 3 \\ 0 & \text{if } t \geq 3. \end{cases}$$

(a) Sketch a graph of $f(t)$.

(b) Write $f(t)$ in terms of unit step functions. Simplify your final answer.

(c) Find the Laplace transform of $f(t)$.

Turn over the page for more fun...

2. Find the inverse transformation of $G(s) = \dfrac{1}{s(s^2 - 2s + 3)}$

3. Find the inverse transformation of $H(s) = \dfrac{1}{s(s^2 - 2s + 3)} \left(e^{-2s} - e^{-4s}\right)$