

IMPORTANT DATES:

1. There will be a proficiency exam on **Wednesday, April 1st**.
2. The homework problems from this handout are due **Monday, April 6th**.
3. The third and last proficiency exam will be on **Friday, April 10th**.

Section 5.5: Discontinuous Forcing Terms - key concepts:

1. Heaviside step function
2. representing a discontinuous function using the Heaviside function
3. using the Heaviside function to take the Laplace transform of a function
4. inverse Laplace transforms yielding Heaviside functions

homework: pg. 225-6, # 1, 5, 13, 22, 28. BONUS: Find the particular solution to the IVP $y'' + 9y = H(t - 3)H(4 - t)$.

Section 5.6: The Delta Function - key concepts:

1. impulse associated with a force
2. delta function (centered at $t = p$)
3. unit impulse response function

homework: pg. 232, # 2, 5.

Section 5.7: Convolutions - key concepts:

1. the inverse Laplace transform of a product of two functions is the convolution of the inverse Laplace transforms of the two functions
2. a solution to a linear second order initial value problem with time-dependent forcing can be expressed as the sum of a solution to the homogeneous form of the equation (zero forcing), called $y_i(t)$ in the book, and a solution to the original equation with zero initial conditions, called $y_s(t)$ in the book

homework: pg. 241, # 8, 22, 27, 29.