6.003 (Fall 2009)

Quiz #3 *November 18, 2009*

Name:

Kerberos Username:

Please circle your section number:

Section	*Instructor*	*Time*
1	Marc Baldo	10 am
2	Marc Baldo	11 am
3	Elfar Adalsteinsson	1 pm
4	Elfar Adalsteinsson	2 pm

Partial credit will be given for answers that demonstrate some but not all of the important conceptual issues.

Explanations are not required and will not affect your grade.

You have **two hours.**

Please put your initials on all subsequent sheets.

Enter your answers in the boxes.

This quiz is closed book, but you may use three 8.5 × 11 sheets of paper (six sides total).

No calculators, computers, cell phones, music players, or other aids.

1	/12
2	/20
3	/18
4	/25
5	/25
Total	/100

1. Impulsive Input *[12 points]*

Let the following periodic signal

$$x(t) = \sum_{m=-\infty}^{\infty} \delta(t-3m) + \delta(t-1-3m) - \delta(t-2-3m)$$

be the input to an LTI system with system function

$$H(s) = e^{s/4} - e^{-s/4}.$$

Let b_k represent the Fourier series coefficients of the resulting output signal $y(t)$. Determine b_3.

$b_3 =$ [ ]

Worksheet (intentionally blank)