

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Electrical Engineering and Computer Science
6.01—Introduction to EECS I
Spring Semester, 2008

NanoQuiz Week #6 (sections 1 and 2)

Name: _____ **Athena userid:** _____@mit.edu

This quiz is due promptly 15 minutes after the start of the lab period.

You may use the weekly assignment handout, but the quiz is otherwise closed book and closed computer.

Let H be the LTI system with input e and output y described by the following difference equation:

$$y[n] = y[n-1] + y[n-2] + e[n]$$

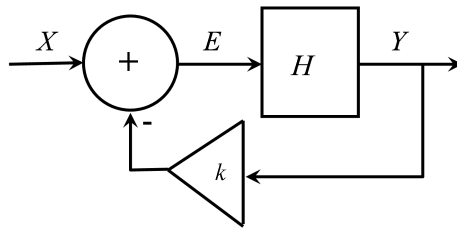
1. What is the system function for H ?

2. What are the poles of H ?

3. Is the system described by H stable?

Additional questions on the reverse side...

Let M be the LTI system with input x and output y described by the following block diagram, where k is some constant (positive or negative) and H is the system function described on the previous page.



4. What is the system function for M ?

5. Is the system M stable if $k = 2$?