PROBLEM:

A linear time-invariant system is implemented in MATLAB by the following statement

```
y=filter([1 -2 1],[1 -1.81 .81],x)
```

where `x` is a vector of input samples.

(a) Write a MATLAB statement for generating necessary input vector `x` needed to compute samples of the impulse response $h[n]$ of this system for $0 \leq n \leq 50$.

(b) What is the system function $H(z)$ of the system?

(c) Using unit delays, coefficient multipliers, and adders, draw a block diagram of the system whose system function is as determined in part (b).