

## Homework Assignment #2

### Due: September 28, 2012

1. Let  $L = \{0^x 1^y 2^x : x, y \in \mathbb{N}\}$ . Give a function  $L(n)$  and give a careful proof that *every* (single-tape) Turing machine that decides  $L$  has worst-case running time  $\Omega(L(n))$ . Your function  $L(n)$  should be as large as possible.