

# Math 382

## Homework 2

Due Wednesday, February 11

For each of the recurrence relations below, use the tree method to generate a guess  $f(n)$  of the running time  $T(n)$  and then prove by induction that  $T(n) \in O(f(n))$ .

1.  $T(n) = 4T(n/3) + n^2$   
 $T(1) = 1$

2.  $T(n) = 4T(n/3) + n$   
 $T(1) = 1$