

# MATH/CSE 1019 Discrete Math for Computer Science

## Assignment 5

Released: Nov 5, 2012

Due: 1 pm, Nov 13, 2012

### Notes:

1. No late submissions will be graded.
2. Submit your assignment using the dropbox, which is located on the 1<sup>st</sup> floor of LAS.
3. You must do the assignment by yourself
4. Submit this assignment only if you have read and understood the policy on academic honesty on the course web page. If you have questions or concerns, please contact the instructor.

### Questions:

1. (3 points) Let  $A = \begin{bmatrix} 0 & 3 & 5 \\ 4 & 1 & 0 \\ 0 & 2 & 7 \end{bmatrix}$  and  $B = \begin{bmatrix} 3 & 2 & 2 \\ 1 & 1 & 6 \\ 4 & 0 & 5 \end{bmatrix}$ . Find  $A^t B$ .

2. (5 points) Use mathematical induction to show that  $12^n - 56$  is divisible by 11 for  $n \in \mathbb{N}$ .
3. (5 points) Show that  $x^3 \log x$  is  $O(x^4)$ .