

COMPUTER SCIENCE 20, SPRING 2012
DISCRETE MATHEMATICS FOR COMPUTER SCIENCE

Class #29 (Series)

Homework, due in hard copy Friday 4/20/2012 at 10:10am

Please write your TF's name on your homework, and list the names of any students with whom you collaborated.

1. Does the series $1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} + \dots$ converge or diverge? *Hint: consider the harmonic series.*
2. Determine a closed form expression for $\sum_{k=0}^n k \binom{n}{k}$, and prove that it is correct. *Hint: consider the binomial expansion for $(1+x)^n$*