

**Math 165: Honors Calculus I**  
**Assignment 5** *Sept. 6, 1999*

1. Compute the row of Pascal's Triangle for  $n = 8$ .
2. Show that the row of Pascal's Triangle that begins  $1 \quad n \quad \cdots$  adds up to  $2^n$ , i.e., show that  $2^n = \sum_{k=0}^n \binom{n}{k}$ .
3. Show that  $0 = \sum_{k=0}^n (-1)^k \binom{n}{k}$ .
4. Show that  $\binom{n}{k} = \frac{n}{k} \binom{n-1}{k-1}$ .