

**MATH 630. Combinatorics, Fall 2008**  
**Assignment 1. Due on Wednesday, September 10, 2008**

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1. Let  $f(n)$  be a sequence with the following exponential generating function

$$\sum_{n \geq 0} f(n) \frac{x^n}{n!} = \exp\left(x + \frac{x^2}{2}\right).$$

Evaluate the sum

$$\sum_{i=0}^n (-1)^{n-i} \binom{n}{i} f(i).$$

2. Exercises on page 43.  
1(a,b,f,i), 2(a,b), 3, 4, 5, 10, 12, 13, 14(a,c,e,f).