Assignment #1

DUE *Wednesday 30 January, 2008*

Exercises on pages 4–5 of Brown & Churchill: # 2, 4, 5, 9a, 9b

Exercises on page 7 of Brown & Churchill: # 4, 5, 7

Exercise C1.   Prove, by mathematical induction, that
$$1 + 2 + 3 + \cdots + n = \frac{n(n+1)}{2}.$$

Exercise C2.   Prove, by mathematical induction or directly, that
$$\binom{n+1}{k} = \binom{n}{k} + \binom{n}{k-1}.$$
You proof must address the valid range of n and of k. Note that, by definition,
$$\binom{n}{k} = \frac{n!}{k!(n-k)!}.$$