Quiz 3

Student's name:

1. [100 points]

Prove the following statement by mathematical induction:

$$\sum_{i=1}^{n+1} i \times 2^i = n \times 2^{n+2} + 2$$

for all integers $n \geq 0$.

Base case: clearly state what you need to prove as base case, and then prove it.

Inductive step: clearly write the inductive hypothesis and the inductive conclusion (i.e., the statement to be proved). Then proceed with the proof.

Inductive hypothesis:

Inductive conclusion:

Proof: