MAT 371 Homework 2  
Instructor: John Quigg

Due: Friday, February 1

1. Prove by induction that \( n^3 + 5n \) is divisible by 6 for each \( n \in \mathbb{N} \).

2. Let \( A \) and \( B \) be nonempty subsets of \( \mathbb{R} \) which are bounded above. Prove that 
   
   \[
   \sup(A + B) = \sup A + \sup B, 
   \]

   where \( A + B = \{ x + y : x \in A, y \in B \} \).