Pre-Calc 2 Assignment 230 Wednesday, April 1, 2015 Hour Name

Prove the following True $\forall$ n $\in$ $\mathbb{N}$ using Mathematical Induction.

1. $\sum_{i=1}^{n} i^3 = 1^3 + 2^3 + 3^3 + 4^3 + ... + n^3 = \frac{n^2(n+1)^2}{4}$

2. $\sum_{i=1}^{n} (4i + 2) = 6 + 10 + 14 + 18 + \ldots + (4n + 2) = \frac{n(4n+8)}{2}$

3. $\sum_{i=1}^{n} 3i = 3 + 6 + 9 + 12 + \ldots + 3n = \frac{n(3n+3)}{2}$