1. Prove for $n \geq 0$:
\[
1^2 + 3^2 + 5^2 + \cdots + (2n+1)^2 = \frac{(n+1)(2n+1)(2n+3)}{3}
\]

2. Prove for $n \geq 1$:
\[
1 \cdot 1! + 2 \cdot 2! + \cdots + n \cdot n! = (n + 1)! - 1
\]

3. Prove that 2 divides $n^2 + n$ whenever $n$ is a positive integer