

MATH 1210 Tutorial 1

1. Use mathematical induction to prove that for $n \geq 1$,

$$2 + 5 + 8 + \cdots + (3n - 1) = \frac{3n^2 + n}{2}.$$

2. Use mathematical induction to prove that 6 divides $n^3 + 9n^2 + 26n + 24$ for all $n \geq 1$.
3. Use mathematical induction to prove that for $n \geq 1$,

$$(2n + 1) + (2n + 3) + (2n + 5) + \cdots + (4n + 1) = 3n^2 + 4n + 1.$$