

Professor: Fred Khoury

1. Prove that the statement is true: $4 + 8 + 12 + \cdots + 4n = 2n(n + 1)$
2. Prove that the statement is true: $1 + 5 + 9 + \cdots + (4n - 3) = n(2n - 1)$
3. Prove that the statement is true: $2 + 4 + 8 + \cdots + 2^n = 2(2^n - 1)$
4. Prove that the statement is true: $1^4 + 2^4 + 3^4 + \cdots + n^4 = \frac{1}{30}n(n + 1)(2n + 1)(3n^2 + 3n - 1)$