

ADC practice questions: induction

Question 1.

Prove that $\sum_{i=1}^n i^2 = \frac{2n^3 + 3n^2 + n}{6}$ for $n \geq 1$.

Question 2.

The Fibonacci sequence is defined as

$$F(n) = F(n-1) + F(n-2) \quad \text{voor } n \geq 2$$

Starting with $F(0) = 0$ en $F(1) = 1$.

Prove, by induction, that: $F(n) \geq 0.01 \left(\frac{3}{2}\right)^n$ for all $n \geq 1$.