

Take-Home Quiz 1

Due Wednesday, October 16, 2019

1. Use mathematical induction to prove that, for all integers $n \geq 0$,

$$2^0 + 2^1 + 2^2 + 2^3 + \cdots + 2^n = 2^{n+1} - 1.$$

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

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