

MATH 243 – Mathematical Structures

Quiz 3 – September 22, 2017

Your Name: _____

Directions

Do all work and answer all questions on this sheet. (Use the back if you need more space.)
There are 30 possible points, distributed as indicated.

A) (15) State the three Peano Axioms for \mathbb{N} .

B) (15) Prove by induction: For all natural numbers $n \geq 1$, $1 + 3 + \cdots + (2n - 1) = n^2$. (Note: the “base case” will be $n = 1$ here, although you could also make the formula work for $n = 0$ with a convention about what the sum means in that case.)