MTH 220: Take-Home Quiz 2

Name _____

You may not receive help from anyone on this quiz. The problems must be solved using methods learned in this course, and all necessary work must be shown.

1. Give a direct proof to prove that $\forall m, n \in \mathbb{Z}$, if m and n are both odd, then $n^2 + m^2$ is even. (10 points)

2. Give a direct proof to prove that $\forall n \in \mathbb{Z}$, if $n+1$ is divisible by 4, then $n^2 - 2n + 13$ is divisible by 16. (10 points)