MATH 271 – Summer 2016
Quiz 3
Thursday, July 28. Duration: 50 minutes

1. (*8 points*) Of the two following statements, one is true and one is false. Determine which statement is true and which is false. Prove the true statement and disprove the false statement. Use the element method.

(a) For all sets A, B, and C, if $A - B = C$ then $A = B \cup C$.

(b) For all sets A, B, and C, if $A - B \subseteq C$ then $A - C \subseteq B$.

Name:_____ Id #:_____

2. (*7 points*)
Consider the sequence $a_0, a_1, a_2, \ldots$ defined by $a_0 = 0$, $a_1 = 4$, and $a_n = 6a_{n-1} - 5a_{n-2}$ for all integers $n \geq 2$. Use strong mathematical induction to prove that $a_n = 5^n - 1$ for all integers $n \geq 0$.