Quiz 4, Math Thought

Dr. Graham-Squire, Spring 2016

Name: _____

1. (3 points) To prove that $(A \cup B) - B = A - (A \cap B)$, you would need to prove two set inclusions. Prove <u>one</u> of the set inclusions (whichever you prefer) for this problem.

2. (2 points) Let $A = \{1, 2, 3, 4\}$ and $B = \{2, 3, 4, 5\}$. Use the definition of Cartesian product to explain why $A \times B \neq B \times A$.

3. (2 points) State if the equation is True or False and justify your conclusions (do not necessarily need a full proof).

Let A, B and C be sets. If $A \cap C = B \cup C$, then $A = B$.

4. (3 points) Use the choose-an-element method and definitions to carefully prove that $A \cap B^c \subseteq A - B$ (Note: they are in fact equal, but you do NOT need to prove the other set inclusion).