

Directions: This assessment has 3 questions, for a total of 20 points. You must show all of your work to receive full credit for an answer. Remember, you may not use a calculator or any other resources during this assessment. Good luck!!

First Name: _____ Last Name: _____ # _____

1. (6 points) Let $A = \{1, 2, 3\}$ and $B = \{\{\}, 2, \{1, 2, 3\}\}$. Write the elements of the power set of the set $(B \setminus A)^c$ where $A \cup B$ is the universe.

2. (7 points) Let $A = \{x \mid x^2 + 5x + 6 = 0\}$ and $B = \{x \mid x \in \mathbb{Z} \text{ and } 0 < x \leq 2\}$. Write the set $B \times A$.

3. (7 points) Let A and B be sets. Prove that

$$A \cup B \subseteq A \cap B \rightarrow A = B.$$