

Name: _____

Lecture 10, class activity. Set operations.

Let us assume that we have a universal set U , and all of our sets will be subsets of U . Let us also assume that we have a function μ that gives a nonnegative number to any subset of U , with two properties:

1. If $A \cap B = \emptyset$ then $\mu(A \cup B) = \mu(A) + \mu(B)$;
 2. $\mu(U) = 1$.
- A. Show that $\mu(A^c) = 1 - \mu(A)$.

B. Show that $\mu(\emptyset) = 0$.

C. Show that $\mu(A \cup B) = \mu(A) + \mu(B) - \mu(A \cap B)$

Hint: You might find it useful to draw a Venn diagram.